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VOCATIONAL GUIDANCE FOR THE PROFESSIONS

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[*In preparation.*]

VOCATIONAL GUIDANCE FOR THE PROFESSIONS

By

EDWIN TENNEY BREWSTER

Author of "The Life and Letters of Josiah Dwight Whitney," "The Child's Guide to Living Things," "The Nutrition of a Household," etc.

RAND McNALLY & COMPANY

Chicago *New York*

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THE INTRODUCTION

NO ONE who knows the present crowded conditions of the professions—crowded to the injury of the profession and society—doubts the wisdom of more careful counseling of the young men and women who are considering or will consider a profession as a life career. The success of our democracy depends much upon our leaders. Professional men are leaders and therefore become widely destructive or genuinely constructive in social welfare.

Vocational guidance, if it is to be of any value, must be based on facts; and the facts can be obtained by a careful survey of the vocations. With a few exceptions sons must fill the places vacated by their fathers. There must always be a fair adjustment between supply and demand. Disregarding this fundamental law, our schools are pushing two or three times too many young men toward the professions already overcrowded. The results are disastrous to the misguided youth.

Every parent and teacher who knows the present antipathy to manual labor, and the false enthusiasm for white-collar jobs and the professions, should make a very careful investigation of the reasons for the choice of the professional career by a son or pupil. Every youth should be led also to make a very careful examination and take account of stock—to see whether his decision is based on social influences or on real ability.

Mr. Brewster's book will be read with interest by parents, teachers, and social workers, and by the pupils in our high schools and colleges. All who read will be led to consider carefully the choice of a profession, and

many will be led to reconsider carefully. Mr. Brewster has stated the facts in so clear and unprejudiced a manner that young men of real ability and moral integrity will find encouragement and wise counsel.

J. ADAMS PUFFER

Boston, Massachusetts

THE PREFACE

THE vocational guide, or the writer of a vocational guidebook, faces a somewhat peculiar situation in dealing with the professions. His human raw material is a group of boys and girls of exceptionally high quality, who are well able to see for themselves all the more obvious matters with which a vocational counselor has usually to deal. No mere catalogue of requirements, opportunities, wages, and conditions of labor is of much use to youth who are headed for the higher professional schools. Such persons need a compass, not a map; to be oriented rather than steered.

I have therefore touched lightly on several matters which are commonly treated at some length, and in their place have laid special emphasis on the psychology of the various professional groups. This topic I have considered somewhat fully in case of the vocations earliest taken up, but more sketchily for the rest, with the idea of stimulating the adolescent reader to think out his own case for himself — since, always, my aim is to be suggestive rather than dogmatic. Such questions, however, as appear to have been slighted in the present text will in each case, I think, be found handled adequately in some other volume of the series. For the fact is that there is so much that may be said concerning each several group of vocations which also may be equally well said of most of the others, that it were vain repetition to say it each time. In particular, the pedagogical side of the general subject has been dealt with in the initial book, *Vocational Guidance — The Teacher as a Counselor;* and to this I refer the reader who is also a teacher.

To the general body of my friends of the professional group — lawyers, doctors, nurses, engineers, teachers, artists — I am indebted for the subject-matter of the book: a multitude far beyond any specific mention, but to whom, hereby, my thanks.

E. T. B.

Andover, Massachusetts

THE GENERAL QUESTION

The Halliday Historic Photograph Co.

BENJAMIN FRANKLIN — Printer

"The many-sided Franklin" had the ideal professional mind, and was probably the ablest man ever a citizen of the United States. He was artisan, business man, scholar, athlete, inventor, man of science, statesman, diplomat, lay preacher, administrator, author. In several different fields, he was among the foremost men of his day, and he could probably have won high success in almost any profession which he cared to undertake. Yet he came of a non-professional stock, and was self-educated.

VOCATIONAL GUIDANCE FOR THE PROFESSIONS

CHAPTER I

What Is a Profession?

WE SHALL have to admit at the outset that there is no hard-and-fast line to be drawn between the professions and other sorts of vocations. Common usage reckons the bookkeeper to be "in business" — unless he happens to be a most uncommonly good bookkeeper; in which case, we call him an expert accountant and rate him as a professional man. Bookkeeping, then, is a profession at the top and a business everywhere else. Yet who can say where the professional head leaves off and the business neck begins?

Teaching also is a profession at the top. The higher ranks of teachers are not especially different, in standing or in income, from accountants. But teaching is a profession clear through to the bottom. The grade teacher or the kindergartner is a professional woman, though her sister who keeps books, after an equal training and at twice the wage, is not.

Acting is a profession. The sorriest barnstormer, tramping the ties toward New York, considers himself a professional man and an artist. But the baseball player is master only of a trade, though he learns his trade in the first university of the land and has the salary of two or three college presidents. No degree of proficiency ever lifts the professional athlete into the ranks of professional men.

Brown Bros.

Non-professional work. Finishing the coats to women's suits. These people are doing a particular task in a practical, rule-of-thumb way and are clearly on the non-professional side of the line

All this, though a trifle illogical, is practically convenient. It would indeed be a rash man who should attempt to coin a definition of electrical engineer which would cut off all practical electricians, or say where the draftsman leaves off and the architect begins. And yet we all feel that however much various of the modern trades may flower out into professions, any particular man or woman is pretty clearly on one side of the line or the other. As a rule, after one finishes the grammar-school course, he spends two, three, or four years in mastering the practical, rule-of-thumb way to do some particular task, and then keeps on doing it in the same way for the rest of his days. Or else one goes a great deal farther, gets much of his knowledge out of books, and continues a student all his life. In other words, he enters a profession.

The special characteristics of the professions are, therefore, these: They all require a somewhat long and arduous training before earning power begins. In certain cases this training is prolonged even to five or six years beyond college graduation. In all cases the professional education includes much that has little immediate bearing on practical duties. Promotion is characteristically slow, and high earning power usually comes only with the approach of middle age. Moreover, unlike the business man, the professional man does not make or buy or sell any material object, or make a profit on the labor of persons to whom he pays wages. His earnings are salary or fees, not profits. He is, then, essentially a wage earner. But he differs from other

Brown Bros.

Professional work. Teaching is a profession clear through from top to bottom whether the work is carried on in a university or whether it is limited to conducting a gymnastic class in the lower grades

wage earners in selling his experience, judgment, advice, or ideas, instead of selling his strength of body, his skill of hand, or merely his time.

Clearly, then, "the professions" is simply a convenient term for a somewhat wide group of vocations which have a good deal in common with one another, yet share also the characteristics of many occupations which are not professions. Few artisans, for example, have the manual skill of most surgeons or of many laboratory workers. Banking and book publishing are almost as much professions as forms of business. Musical skill runs in unbroken series from the base-drum player in the band who belongs to the musicians' union to Kreisler and Paderewski.

Nevertheless, common usage has settled it that certain vocations are professions, and the rest are not. Usage shall, then, be our guide.

CHAPTER II

The Professional Type

THERE is no professional type. Every possible kind of man or woman, every possible combination of human qualities, finds its place somewhere in the professional ranks. There are all sorts of people inside the professions, as there are all sorts outside.

Indeed, each particular profession does more or less match some non-profession in the kind of person whom it attracts. Paderewski and our base-drum player are both musicians; the pianist is simply a vastly better one. The same man who finds out what is the matter with our plumbing and cures it, would, if he had more ability of the same sort, be able to find out what is the matter with our digestion and cure that. The salesman who guides us wisely in the choice of a hat or persuades us into buying a necktie we do not want, is really the same sort of man as the lawyer who steers us through the mazes of the statutes, or convinces the jury that his rascally client is a wronged and innocent man.

In other words, the professional man is like other wage earners — only he has more brains, energy, perseverance, insight, independence, imagination. He is not a different sort of man, but a better man of the same sort. Sign painter and artist, stonecutter and sculptor, maid-of-all-work and teacher of domestic science — each professional member of a pair is the non-professional "writ large." If the other had more ability of the same kind, and the training to go with it, he, too, would be in a profession.

Business, also, in its higher ranks, takes in men who have

nothing more than the common qualities or the special gifts of the inconspicuous and underpaid, but merely have these in greater measure. There, is, therefore, no real difference between the kind of man who succeeds in business and the kind of man who succeeds in a profession. There are probably few good business men who would not, if they had started in time, have done well also at some one of the professions. There is probably no profession some of whose members have not shown high capacity for business.

And yet, as one looks about the world, one does notice a certain general difference between the business and the professional type. We think of the business man as alert, aggressive, able to handle men, especially interested in details; we think of the professional man as more cautious, more scholarly, able to handle books, and especially interested in general ideas. The difference is not at all a constant one. The distinction, in these days,

Sign painting. Art below the professional level Brown Bros

An artist's studio. Art on the professional level Brown Bros.

probably fails more often than it holds good. Yet it is not a point to be ignored altogether by any youth who is in doubt on which side of the line between business and the professions he himself belongs.

Except, then, for this vague difference, which so far as it exists at all is more a matter of temperament than of intellect, there is no professional type of man or woman. One does not say: This boy or this girl is predestined to a profession; let us discover which. Rather one says: This boy or this girl is predestined to this kind of work; let us see whether it is to be done on the professional or the non-professional level.

In other words, entrance into the professional group is decided not by the kind of ability but by the amount. Any boy or girl who finds professional work attractive may be sure of having the right kind of talent for success somewhere. The only question is: Has he enough?

ABBOTT LAWRENCE LOWELL — President of Harvard University

By training a lawyer and later a successful teacher of the law, he remains essentially an administrator. The portrait is that of an efficient business man who might equally as well be president of a railway or a bank as of a university.

CHAPTER III

The Rewards of the Professions

THERE is no standard of payment for the professions. Ask the wages of a carpenter or a cash girl, and you will be told pretty accurately—so much per hour, so much per week, such and such a rise with experience. Moreover, the general run of wages in a handicraft or business position does not vary much in different parts of the country. It is doubtful if any artisan or clerk in the land could double his wages by a mere change of residence.

But professional earnings may be anything. The average salary of public-school teachers in certain of our states is more than eight times that in others. Half the lawyers in the country do not make even a bare living out of the law alone; but there is a small group whose earnings run to six figures. This physician charges his office patients one dollar a visit; that one charges five, and sees twice as many in a day. The same artist, singing the same rôle, may be paid ten times as much in New York as in Paris. Professional incomes are like business profits—there is no standard. A man makes much or little, as he can.

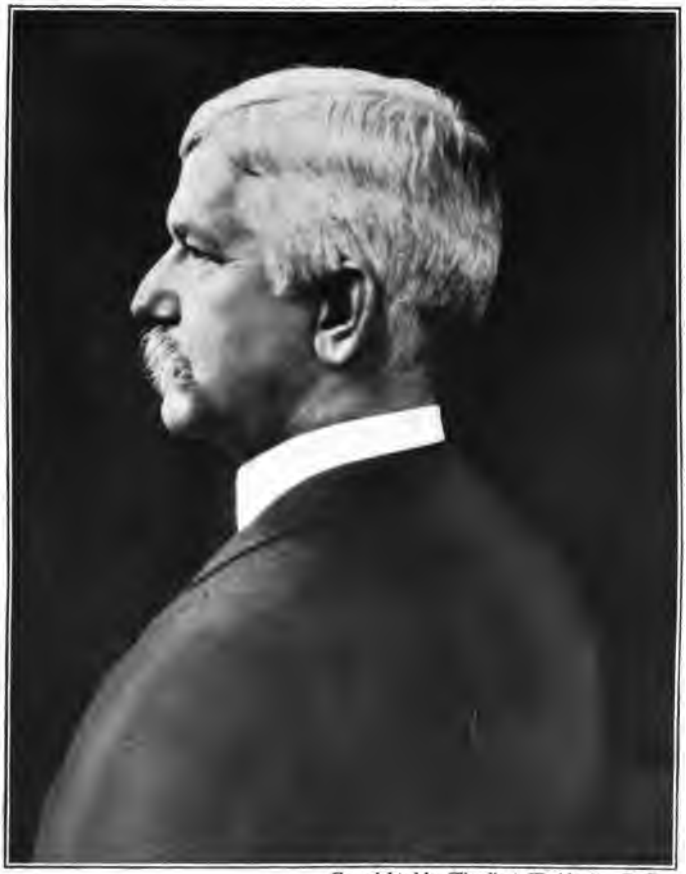
The one obvious fact is that professional men, grade for grade, earn less than business men. If the highest yearly incomes of the professions touch six figures, those of the most successful business men are nearer seven. The presidents of our greater universities, though they count as teachers, are all really business managers. Virtually every one of them could become the head of a business plant at three times the income he is now getting.

Probably nine men out of ten who leave the professions for business better themselves by the change.

Nor is there much relation in the professions between eminence and income. A successful lawyer waits until his children are grown up and off his hands, and then accepts a promotion to the bench, at half or a third the returns of his office work. One physician may build up a large, fashionable practice and grow rich, but without being known outside his town. Another may devote himself to research, take only just enough paid practice to boil the family pot, do all his best work for nothing for the sake of running down some obscure disease, and be famous the world over. Milton and Shakespeare hardly made a living out of their writings; but who recalls even the name of the author of last year's "best seller," which ran to a hundred thousand in the first month?

No, the rewards of the professions are not money. Most successful men and women in the professional group would have had to do less work in a lifetime, and been better paid for it, if they had taken up some form of business; most unsuccessful persons could not have done worse no matter what they tried.

One takes up a profession not for what he can get out of it, but for what he can put in. For him who loves his work, that itself is its own best reward; and professional work offers more of interest and variety, and less of drudgery and monotony, than any other sort of employment, unless perhaps it be certain uncommon forms of business. If the professional man, as Agassiz said of himself, has "no time to make money," his chance of congenial work, of social position, of reputation, of liberty, of contact with the things of the mind and of service to the world, is usually very much better than



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MAJOR-GENERAL, SURGEON-GENERAL WILLIAM C. GORGAS, U.S.A.

The fame of his achievements in Havana and Panama in the service of his country is world-wide. But his monetary reward was simply that accorded to one of his rank in the United States Army.

any non-professional vocation would bring him. It is for each person to decide in which form he will take his pay.

Any youth, therefore, who finds himself attracted toward any one of the professions must face this issue squarely: If he enters and succeeds, he will have to work harder and longer, and have less money to show for it, than if he had gone into business. If he enters and fails, he will have less than if he had learned a trade. But whether he succeeds or fails, if he loves his work he will have permanent satisfactions which no money can buy, and a joy in his labor such as he will find nowhere else. After all, as the proverb says, one cannot eat his cake and have it too.

THE PERSONAL PROBLEM

CHAPTER IV

The Call to a Profession

SINCE the highest reward of professional life is not money but the fundamental interest of the work itself, one needs to be especially careful to pick just that work which he does most of all care to do. "Business is business" in more senses than one. We can decide to "go into business," and afterward pick out our special field. After we have started on one business, we may change to another. Men often do, many times. The man who does well at one business would probably have done about equally well at any one of a dozen others, and been equally well satisfied in the end.

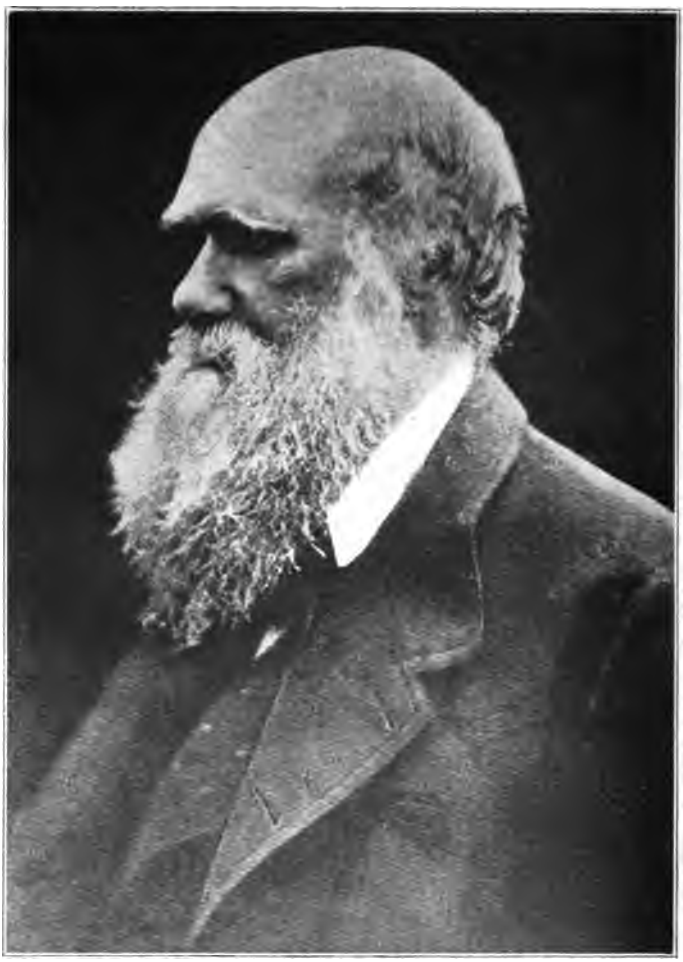
It is not so with the professions. One must choose whether he will be a physician or an opera singer; and by the time he has gone through the long training needed to make him either, it is commonly too late to change his mind and become the other. Men take their professions "for better for worse," as they do not take most other vocations.

One must, then, be especially sure that he is right before he goes ahead. There are a few fortunate boys and girls who early make up their minds as to what they are to do, and stick to it. While still in the grammar school, a boy decides, let us say, on the law, a girl pitches upon nursing, and the entire education is built around that idea. Edison, for example, was an electrician from boyhood, and never really anything else. Louisa Alcott began writing as a child. Such choices are often as wise as they are convenient.

But they are uncommon. Most of us have to feel our way along. On the whole, professional life looks attractive. A profession runs in the family, or certain people whom we especially admire happen to be professional men or women. But we have no specific call. Any one of two or three professions appears desirable, and we feel that we could succeed in one about as well as in another.

Probably we are right. As we shall see later more in detail, the various professions much overlap in the native qualities which they demand. The great violinist would probably have been about equally eminent if he had taken up the piano. Many clergymen would have done as well as schoolmasters or college professors. Many physicians would have made good men of science or engineers. Provided only a youth has enough ability to enter a profession at all, he can commonly choose which one of several it shall be.

One has only to read over the biographies of eminent men and women to see how commonly they have felt their way along from one possibility to another, until they finally came to their proper work. Holmes, Agassiz, and Huxley all planned to practice medicine, and then switched off and became anatomists. Darwin intended to enter the ministry. Priestley and Mendel actually did become clergymen, and carried on the scientific work which made them famous as the avocation of their leisure hours. The two Whitney brothers, Josiah Dwight and William Dwight, each interested the other in his own future work until each, as a young man, changed to the field of the other, and became one of the foremost men of his time in the profession which his brother had expected to enter. Few professional men have heard one distinct call to their work and from the beginning marched straight toward their goal.



CHARLES ROBERT DARWIN

The great Darwin, who came of eminent professional stock, was first educated for the ministry; but he found his proper professional work and achieved his greatness in the field of natural science.

Most boys and girls, therefore, when they find themselves attracted toward any profession, will do well to look over the field pretty widely and to note all the possibilities within their range. Much will, of course, be clearly outside. Then gradually, as they come to learn more concerning their possible vocations, and as their own quality develops and becomes more and more evident, they can shut off one blind lead after another, and narrow down to the final choice. In fact, one of the main objects of this book is to assist just this survey of the whole field within the range of a possible choice, and to point out just why, for one youth or another, such and such an opening is "no thoroughfare."

The time for this general survey of the professional field is during the high-school course. One is then at the time of life when the type of his intellect and the main elements of his character have already revealed themselves. He already knows that there are certain things which he cannot possibly do. At the same time, the details of mind and will are not yet fixed. One can decide what he wants to be, and to some extent make himself over to fit his pattern. Most boys and girls who have not already decided on a life work before they enter the high school, do so during their course.

In general, then, during the four years of high-school work most young people will have to make up their minds whether or no they care to enter any profession. Those who find that they do, ought by the time they graduate to have narrowed down their preferences to fewer than half a dozen different possibilities, and to have shaped their studies accordingly. Those who do not go on to college will commonly have made the final choice.

CHAPTER V

Professional Life in Fancy and in Fact

SUPPOSE, now, that some particular profession looks attractive to a boy or girl, or that any one of a half dozen seems possible or promising. How shall one find out which he really wants, or if he really wants any? There is only one answer: He must study, at first hand, the actual daily routine work of an average successful practitioner, and find out for himself exactly what he himself will have to do for the rest of his life.

There is a deal of false glamour about the professions. Many a girl who aspires to be a nurse pictures herself, slender and trig in her uniform, acting as ministering angel—the reader can complete the picture for himself. Nursing actually means being on one's feet all day, going short of sleep by night, and keeping one's temper all the time, while she washes, dresses, feeds, and makes comfortable a commonplace invalid made unreasonable by pain.

The lawyer does not commonly stand like Daniel Webster in the engraving, while judge, jury, reporters, and innocent accused hang on his words, or the guilty tremble under his eye. As a matter of fact, hardly one lawyer in ten goes into court when he can stay out; while the routine office work of looking up statutes and decisions is about as exciting as finding words in a dictionary. Professional life is good to live, but for very different reasons than the outside public thinks.

Frank Parsons, who was the first to make a regular business of helping boys and girls to find their proper

place in the world's work, tells this story of an experience of his own with a youth who entertained the somewhat common delusions:

"A boy of nineteen said he wanted to be a doctor. He was sickly looking, small, thin, hollow-cheeked, with listless eye and expressionless face. He did not smile once during the interview of more than an hour. He shook hands like a wet stick. His voice was husky and unpleasant, and his conversational powers, aside from answering direct questions, seemed practically limited to 'ss-uh.' . . .

"He had been through the grammar school and the evening high; was not good in any of his studies, nor especially interested in any. His memory was poor. He failed on all the tests for mental power. He had read practically nothing outside of school except the newspapers. He had no resources and few friends. He was not tidy in his appearance, nor in any way attractive. He knew nothing about a doctor's life; not even that he might have to get up at any time in the middle of the night, or that he had to remember books full of symptoms and remedies.

"The boy had no enthusiasms, interests, or ambitions —except the one consuming ambition to be something that people would respect. And he thought he could accomplish that purpose by becoming a physician more easily than in any other way."

In other words, the reasons why the lad wished to enter the profession were precisely the reasons why he should have wanted to keep out.

Most certainly, no one should ever take up any profession thinking that he "will not have to do any work." To be sure, it does look easy to sit in a comfortable office chair, chatting pleasantly with one caller after another,

with no fixed hours of labor except those which one sets himself. But there are long hours of brain-racking toil when the public is not by, and the very fact that there are no fixed hours of labor deprives one also of all fixed leisure. For professional persons there are neither union hours nor business day. Most of them simply work all the time there is. Twelve, fourteen, even sixteen hours a day have sometimes to be maintained for weeks at a time.

There is probably no human occupation where the contrast between appearance and reality is greater than in teaching. "Phew!" says the outsider, "two months' clear vacation in the summer! Odd weeks along through the year! Five hours' work a day — and that mere holding a book to see if what the pupil says agrees with the printing."

As a matter of fact, more women break down at teaching than at any other occupation, except possibly nursing. The long vacations, contrary to general opinion, exist for the instructor, not for the pupil, who could well, for the most part, continue his not very strenuous mental exercise twelve months in the year. Teaching is such very hard work that the stronger private schools commonly expect their instructors to handle only three classes a day, while the great universities limit their men to one or two, and give them three months' vacation every summer and one entire year off in each seven. Even then the men break down. Such is the contrast between professional work as it appears to the outsider and as it really is.

What makes professional life so "punishing" is not so much the long hours as the responsibility. It is notorious that engineers of passenger locomotives, who also take heavy responsibility, sometimes go to pieces

Metropolitan Park Commission, Boston

After the storm. The engineer who constructed this sea wall and causeway evidently did not supply the certainty expected of the professional man's work in return for a fee commensurate with the responsibility

nervously and have to go back to freight trains, though theirs is only the simple task of keeping on the track and on time.

When the plumber sets up a joint, and the joint leaks, he merely takes it down again (on our time) and does the job over until he gets it right. But the physician who treats his patient for common sore throat when he should have discovered the beginnings of diphtheria cannot go back and try again. The patient is dead; the physician's repute has suffered beyond repair. When the engineer gives his opinion on a mine, that hole in the ground must "make good." If it does not, nobody is going to listen to any explanations. Many a good schoolmaster has lost his place through a single error of judgment in a case of discipline.

In the professions, moreover, there are no such "sporting chances" as in business. The business man expects losses. He is satisfied if he guesses right oftener than he guesses wrong. But the preacher cannot defend a thin sermon by saying that after all more people stayed in than went out; nor can the lawyer balance off the innocent client who was hanged against the rascal who escaped. As a famous teacher of engineering used to tell his students, "Your work is not done until you can stake your life on the accuracy of your figures."

It is this demand for certainty that makes professional life hard. "If you sue, you will be beaten," says the legal adviser. "I can't find anything the matter with you," says the consultant. "Your water supply is now free from typhoid," says the bacteriologist. And client, or patient, or municipality gladly pays the cost of a laborer's wages for a month. It looks like "finding money," but making the opinion worth paying for is what earns the fee.

The would-be professional man or woman must, therefore, get behind the scenes and see just what his future work is actually going to be. Let him keep his eyes open for hints. Let him make acquaintances in his chosen field, and see just what really goes into the day's work. Let him read, not imaginary tales, but the professional journals and the biographies of professional people. Best of all, let him arrange to be born in a professional family, and see the life on the inside from his youth up.

CHAPTER VI

Taking Account of Stock

SUPPOSE, then, one has decided that, on the whole, professional life looks more attractive than any other possible career, and has narrowed his preferences down to two or three of the most promising. Suppose also that this opinion is based on a real knowledge of what the profession really is, not merely on what it is imagined to be. The next step is to find out the actual facts concerning the boy or girl who hopes to fit into the professional niche.

First of all, unfortunately, must come the question of resources. Most of the professions demand a preliminary training which is not only long but expensive. It is said to cost ten thousand dollars to make a physician. He does not, to be sure, have to pay it all himself, spot cash. But with fees and living, and the loss of earnings until he is past thirty, he really does not get out of his training for much less. In other words, the candidate for certain professions will have to stake at least five thousand dollars on his final success

Various other professions offer shorter odds. The educational wind is distinctly tempered to the clergyman. A nurse in training, though she will be worked mercilessly, can nearly meet her cost of living. Some teachers get on with two years at a normal school. All these things have to be faced, and planned for in advance

Then, after the preparation is over, comes oftentimes the long wait for something to do. This also varies greatly in different professions. Young men are rather

in demand in teaching and in the ministry, since in both they have to deal much with young people. Many school systems, however, hire no teachers who have not already taught one or two years; while nobody wants to employ either a physician or a lawyer who has not first won experience by practicing on somebody else.

All this may make the start slow. One must count the cost of a year or two of possible idleness, or the certainty of slack work at the beginning of his career.

On top of all this comes the chance of failure in the end. The professions are, for the most part, desperately overcrowded. Competition is even fiercer than in business, and only the best men win.

There are in the United States, in proportion to the population, between four and five times as many physicians as in Germany—and the Germans are not complaining of any lack of medical oversight. We have at least three times as many lawyers as we need, so that only about one in four actually makes his living out of the law alone. New York City alone has more lawyers than all France.

The result is that the average professional man in this country, ten years or more past the end of his normal training, is not making more than fifteen hundred dollars a year. More than this, at least one person in every two who attempts to crowd into a profession—in certain cases as many as nine out of every ten—fails completely and has to turn to something else.

Practically, then, entrance upon a profession resolves itself into this: The candidate risks from one to ten thousand dollars and from two to ten years of his life. At best, he has an even chance of success; at the worst, the odds against him are ten to one. If he wins, the average value of his prize is fifteen hundred dollars a year.

A graduating class of medical students. This profession is enormously overcrowded. At best each graduate has an even chance; at the worst the odds against him are ten to one

Part of the risk in the professional lottery comes from the fact that in so many cases the probationer who misses his jump has nothing to fall on. One entering business begins at the bottom, and works up as far as he can. There is always some level where he is useful. If he cannot handle a big business, he may succeed with a little one.

But the girl who lacks scholarship to teach forty pupils in a classroom is not given twenty with half pay. She simply is not hired at all. The physician who is not trusted in serious cases is not called in for light ailments. The architect who finds work slack at the customary six per cent commission cannot increase his trade by coming down to five. A failure at a profession is, therefore, likely to be more complete than at other vocations, and the time and money spent in preparation more nearly thrown away.

Unless, then, one has a better than common chance to "arrive" in a profession, it is better not to try at all. The stake is too great to risk on any slender chance. Resources, time, the cost of waiting, the chance of retreat in case of failure, must all be weighed. The probable reward of success ought also to be reckoned.

But after all, the main element in the problem is the native ability of the youth himself. The right kind of boy or girl, headed for the right vocation, is pretty certain to come through to the goal. A rigid and honest self-analysis is, therefore, the basis of all else. One cannot decide on a career until one knows what manner of man or woman one is going to be.

Brown Bros.

COLONEL ROOSEVELT ON HIS AFRICAN TRIP

Capable men and women are unhappy when they are idle. When work fails or they need recreation they choose vigorous activities, mental or physical; they hunt lions in the wilds of Africa, they explore rivers in the untamed tropics, they write books, they go for a fifty-mile ride on horseback, they solve intricate problems in mathematics, they do anything rather than be idle.

CHAPTER VII

The Duty of Self-Analysis

YOUTH is the time for self-examination. Children are especially concerned with the external world into which they have been suddenly thrust, and take themselves for granted. By the time one reaches middle age, one has usually come down to an understanding of himself and to some sort of working compromise with his limitations. But from twelve or fourteen years of age up to, let us say, eighteen or twenty, the mind normally turns in on itself. One begins consciously to measure himself against other people; to note the things he can do well, and the things he cannot do at all; and, in general, he seeks to find out what manner of being it is that he must put up with for the next half century. Here is the normal time for religious conversion; for, preliminary, falling in love; and most especially for locating one's claim in the world of affairs. Much of this adolescent introspection is more or less unwholesome. But since all of it is inevitable, one may as well utilize the instinctive impulse to aid his vocational choice.

The first question to be faced is this: Am I, who aspire to professional life, really up to the professional grade?

Now professional men and women, including among the latter the wives of professional men, are distinctly a picked lot. They number hardly one twentieth of the adult population, but they contribute more than half the leaders in every community. One has only to look around among his neighbors, to run through the biographical dictionaries and the pages of *Who's Who*, to

note the authors of any list of books or the table of contents of any important magazine, in fact to apply any test that may occur to one, from listings in the telephone book to membership in Congress, to see that, in proportion to their numbers, the professional classes are contributing from ten to one hundred times their share of exceptionally efficient and useful persons. They are a selected group, the survivors of several times their number who have tried for their places and failed, and of many times more who have not even tried.

The first prerequisite for the life is, then, brains. Unless one has had the good fortune to be born with a certain amount of ability, for him the case is closed. No industry or influence will make up the handicap.

How much brains does it take? At least as much as to graduate from a good high school and be ready to enter a higher institution. Not that one need actually graduate. Really able youths often suffer from ill health, get too much interested in outside matters, take a dislike to some particular subject or instructor, and so miss. But as a general rule, if one has not enough brains to handle the ordinary high-school subjects with moderate ease—when he really tries—then he has not enough brains to succeed in any profession, and he might as well quit at the start. Most professions presuppose a quality of mind that puts a boy or girl well into the first third of the class.

To this general rule there are, however, two very rare exceptions. There are a few cases where men who afterwards did well have suffered during adolescence from a sort of brain-fog, which suddenly cleared away toward early manhood and revealed them to be thoroughly capable persons. There are also a few gifted individuals with such highly specialized brains that they

cannot handle subjects which lie at the opposite pole from their peculiar gifts. One of the eminent scholars of the country, one may fairly say of the world, was beaten by his high-school mathematics! But, of course, he showed his real quality by leading his classes in everything else.

In other words, at least ninety-nine times in a hundred, the professional man or woman is tried out by his class standing. The crack scholar may lack other necessary qualities and so not be professional timber. But the boy or girl who cannot handle most high-school studies is surely not of the professional class.

In certain ways, the best of all tests for professional life is Latin. Greek, of course, may be equally good; but nobody seems to study Greek any more. More than any other ordinary school subject, Latin reproduces in model the conditions of professional work. If one "likes Latin," if one enjoys the mere mental exercise of thinking clearly on an uninteresting subject, and loves a piece of work just because it is hard, then he has the professional temperament. Professional labor is mostly getting up vastly complicated subjects out of books, and then setting the material in order till every fact and opinion and judgment is ready on call. Actual professional life is one prolonged recitation, with the public demanding "principal parts." Aspirants to the professions will, therefore, do well to note somewhat carefully how they handle their high-school Latin.

There could not, however, be a greater error than to confuse the ability which makes the professional man or woman with the "brightness" of childhood. Many eminent men have, to be sure, been "bright" infants; Macaulay and John Stuart Mill are especially striking instances. But, in general, the clever child is merely

precocious. He seems able simply because he is growing old fast, as a year-old dog is vastly wiser than a human baby. By the same token, lack of "smartness" may be a good sign. The child is maturing slowly and will stay young long. Real permanent ability may show very young, or it may not begin to show at all until after fourteen. Here again the test comes only with the high school.

But there is another quality besides brains which is common to all professional people, and that is energy. Some are able to work very long hours; some are able to push on at high speed; but one and all, characteristically, they are able to turn off work.

Now this will to work is a quality that belongs to all well-endowed persons. We speak of savages as indolent, lazy. The average man, when his task is done, sits down and waits for the next meal. The less-than-average man

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A loafer. The less-than-average man frankly loafs when there is plenty of work he might be doing

Brown Bros.

Energetic high-school boys. Native energy, quite as much as intellectual gifts, marks the able child and indicates future success in a chosen profession

frankly loafs on street corner or in grog shop, even when there is plenty of work that he might be doing. Capable people, on the other hand, are unhappy when they are idle. They find occupation for themselves; and when work fails they play chess or climb mountains.

The difference in temperament shows young. Feeble-minded children do not care to play. Average infants have to be amused. But an able child is into every sort of mischief for himself. When he gets older, he builds boats, makes collections, learns telegraphy, takes up the vigorous or the hard-thinking games, does anything rather than be idle.

Since, then, the professional man is largely his own taskmaster, sets his own hours, decides for himself when he has done a day's work, he needs to have a large measure

of this constitutional energy of will. Without it, he will have to drive himself to his work — with the practical result that he will not work hard enough to carry him very far. Many persons, to be sure, have energy who lack "bookishness"; but native energy, quite as much as intellectual gifts, marks the boy or girl who will succeed in the professions.

The third quality which marks the professional group is independence. Most of us are slavish. We conform to the fashion; we follow the crowd. Consequently we get our living by obeying some other person's orders, and are paid for doing as we are told.

But the professional man is not playing any game of follow-the-leader. His day's work is largely to form a succession of independent judgments for the guidance of other people. "This tooth will not stand filling; I shall have to put on a gold cap." "I think this prescription

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A bookish boy. Bookishness does not necessarily indicate that the boy or girl is marked for the professions; it must be accompanied by a native energy and the quality of independence

The Halliday Historic Photograph Co.

ROBERT LOUIS STEVENSON

The author of "Treasure Island" and other stories of adventure, and one of the foremost of contemporary writers, belonged to a family of engineers. He suffered from poor health, and in his later years kept himself alive only by living on a tropic isle in the Pacific. For this reason, he could hardly have succeeded at any other profession.

will straighten you out." "That water supply will be sufficient for the next twenty years." "Under these conditions, the best material is brick"—these are largely what we pay our money for. The man who cannot stand on his own legs, make up his mind for himself, and take the responsibility for the outcome, has small place in the professional ranks. Who does not in youth show some independence of character had better find a vocation where he will not have to be the court of last resort.

In other words, while certain professions require certain special gifts and others do not, they all require a somewhat uncommon keenness of intellect, energy of will, and independence of character. No one who does not during youth exhibit a considerable measure of all three has much prospect of success.

On the other hand, taking the professions as they come, a slender physique or even positive ill health is appreciably less a handicap than in most vocations. Stevenson, Wagner, George Eliot, Carlyle, will occur at once as examples of persons of the highest eminence who could hardly have got on at all at the non-professional industries. Darwin did some of his best work a few minutes at a time, sitting up in bed. Parkman was nearly blind during his best years. Calvin was "faint, thin, and consumptive." The members of no other group are so well able to control the times and conditions of their labor and to order the place and circumstances of their lives. The fact that a professional man in poor health can often take care of himself as he could not in another vocation, may sometimes be the deciding factor in a career. Severe as most of the professions are in their demands on mind and character, certain of them do tend to be distinctly easy on the body.

CHAPTER VIII

The Family Tree and Its Fruit

AFTER all is said, there is no surer way to discover what sort of man or woman a boy or girl is going to become than to notice what sort of people the elders of their families actually are. If, in spite of the proverb, the stream does sometimes rise above its source, it seldom does so very far. Nor, on the other hand, do children, except rarely, fall much below the family level.

Indeed, it has been seriously proposed that in examinations for the British Civil Service, the candidate, in addition to his answers to the papers set, shall be credited also with the actual performance in life of his father, all his uncles, and his two grandfathers. There does not seem to be much question that, if the plan could be made workable, it really would pick a better lot of men than the papers alone. The examination tells what the young man is at the moment; the quality of the men of his family shows what he will probably become.

Whenever, therefore, any profession runs strongly in a family the chance of success in it becomes correspondingly high. The family has already been tried out, and the odds in favor of success for any child are much greater than for any unproved stock. "When in doubt, try the family job" is a safe version of the ancient rule.

Examples of hereditary gifts will readily occur. The musical genius of the Bach family ran through eight generations and landed fifty-seven different persons in the biographical dictionaries. The famous Scotch naturalist and traveler, Edward Forbes, had one brother who

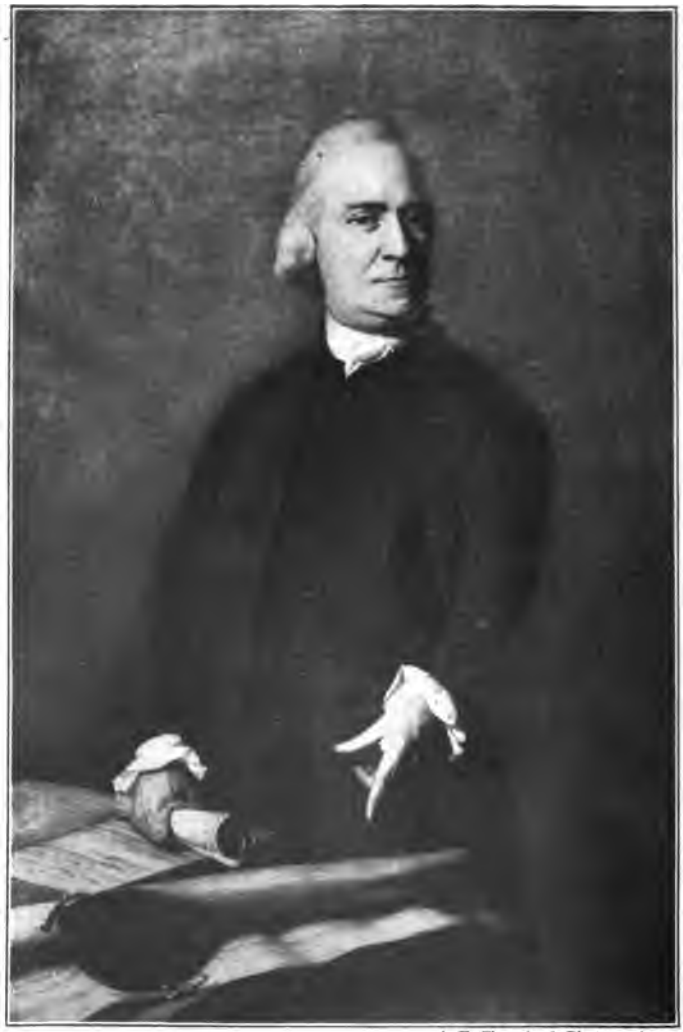
GROVER CLEVELAND

This eminent statesman is a member of a family that has held its type for nearly three hundred years.

was a mining engineer in South America, lost another by accidental death in North America, and another by drowning in Australia. One of his uncles perished in Demerara, another in Surinam, and another somewhere in Central Africa. It used rather to excite remark when a man of that family died in his bed.

The two Jonathan Edwards were so much alike that few persons know that they were not the same man. The father of the elder Jonathan was a clergyman and his grandfather a lawyer, both eminent. Three of his direct descendants were presidents of Yale, and as many more of other institutions. The whole Woolsey-Dwight-Sedgwick-Whitney group, probably the foremost professional strain in the country, are his offspring. To this family belong Aaron Burr, Ulysses S. Grant, Grover Cleveland, and Robert Treat Paine, signer of the Declaration of Independence. From the first Robert Treat Paine descended, in successive generations, six other Robert Treat Paines, all of whom were graduated from Harvard, studied law or went into business, and became prominent men in their communities. For nearly three hundred years the family has held its type like a race of trotting horses or milch kine.

But perhaps the most striking illustration of the way in which quality runs in families is in the Presidents of the United States. Twenty-seven different persons have now held the office. And since, at each election, the number theoretically eligible is at least ten million, the chance that any President will be nearly related to any other, is, at most, of the general order of one in a hundred thousand. Yet the Adamses were father and son, the Harrisons grandfather and grandson, while Grant and Cleveland were distant cousins and both related to Vice-president Aaron Burr. In other words, though every



A. E. Cleaveland, Photographer

SAMUEL ADAMS

An American Revolutionary statesman, and an eminent member of the presidential family of Adamses.

American boy does stand some chance of becoming President, the prospects of some of them are ten or twenty thousand times better than the general run.

But one need not bother with biographies. There are plenty of individuals and of families in every community to prove how strongly hereditary is ability of professional grade. Indeed, it has been calculated — all such calculations have, of course, to be taken with some grains of salt — that of well-equipped and successful professional men about one half come from professional families. That is to say, their people are either in the professions or else are merchants, manufacturers, bankers, and the like, whose business is on an equally high level.

Now this group of "emerged" families does not amount, in general, to more than two or three per cent of the whole number in any country. Roughly, then, one fortieth of the families in the United States are furnishing half the successful professional men. The other half is drawn almost entirely from the families of business men in a small way, clerks, office workers, and the like, and from those of high-skilled artisans. This group of families amounts to something like a fifth of the total population. The remaining three fourths of the people of the country are practically negligible, since unskilled and low-skilled laborers do not commonly get their children beyond the grammar school.

But farming is the original vocation out of which most of the rest have been specialized. Every farmer is, therefore, at the same time artisan, capitalist, business man, professional man, and day laborer. According as he is more or less of one or the other, his children have a greater or a smaller chance to succeed in the professions.

The situation is in many ways regrettable. In an ideal state, every boy in the land would have an equal chance to

From the painting by John Singelton Copley, loaned by Charles Francis Adams, Esq., to the Massachusetts Museum of Fine Arts, Boston

JOHN QUINCY ADAMS — Sixth President of the United States

He was the son of the second President, John Adams, whom he strikingly resembled. His mother also was eminent, and the entire stock down to the present day has maintained a high level of ability. The portrait represents him at the age of twenty-eight when he was United States Minister at The Hague. An example of a highly successful person who is only an average sample of an especially able stock.

become President, justice of the Supreme Court, engineer of the Panama Canal. Here, however, we are concerned with things as they actually are. As a simple matter of fact, educational opportunity, family influence, the unconscious effect of early surroundings, the native ability which in the course of generations has become adjusted

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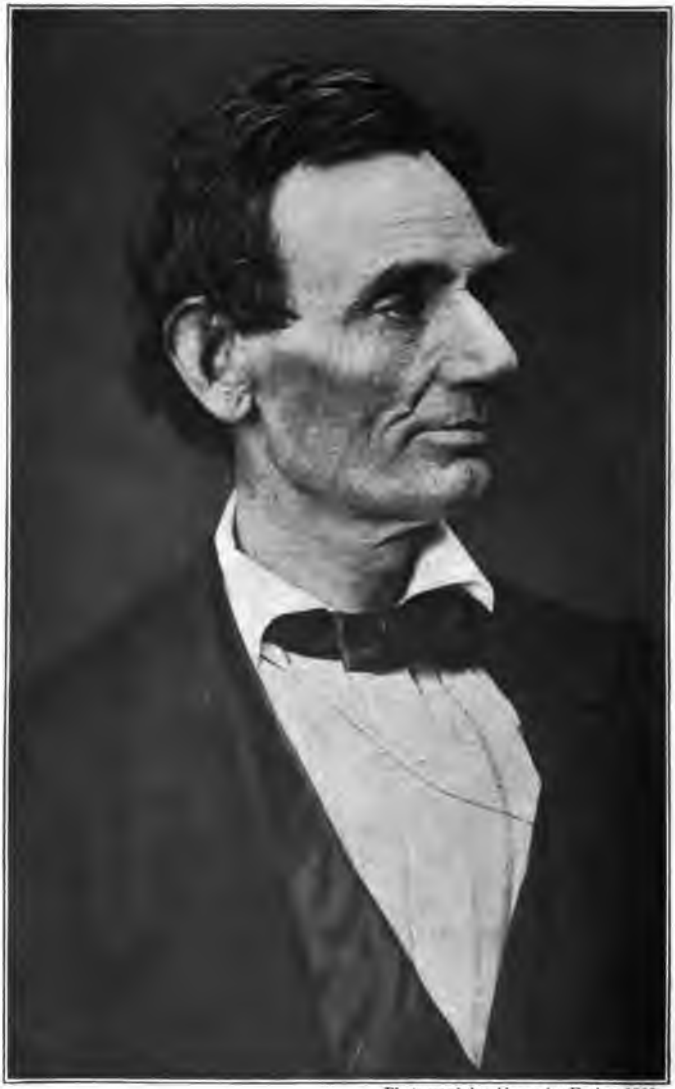
Children of well-to-do families have more than an even chance

to a certain grade of work, do combine to give one boy or girl an enormous advantage over another.

Practically, then, if one is lucky enough to come from eminent and successful stock on both sides of the house, and if one follows the family bent, his choice of a vocation follows a plain path; only his own egregious folly can wreck his career. By so much as any boy or girl departs from this ideal, by so much the more will he need a rigid self-analysis and careful foresight before he ventures the longer chance. For any one, none of whose

relatives has ever done anything especially well, the gate to professional life is indeed strait and the way narrow. The rare families who come up out of the mass commonly make the distance in two jumps: sons in business, grandsons, or sometimes the youngest brother, in the professions.

THE PARTICULAR PROFESSION



Photograph by Alexander Hesler, 1860

ABRAHAM LINCOLN

The exceptional man who was a law unto himself in the matter of preparation and training for the bar.

CHAPTER IX

LAW

SOMEWHAT paradoxically, the law is itself so highly specialized that it demands no special talent in the lawyer. That is to say, there are so many different subdivisions of the profession that any kind of ability will fit into one or other of them, provided only that the ability is of sufficiently high grade. All, therefore, which has already been said of the professions as a whole is preeminently true of the law.

In England, where both legislation and the common law are pretty thoroughly rationalized, practitioners of the law are somewhat rigidly divided into solicitors, barristers, attorneys, advocates, counselors, proctors, and the like, each of whom has a function more or less distinct from the others. Some remnant of these differences is still maintained in a few of our own states.

In general, however, in this country, the independence of Congress and the several state legislatures, and the enormous flood of ill-digested, "happy-thought" legislation proceeding from them all, have made it impossible for any one man to say what the law is at any given moment in more than a small field of human interest. We have, therefore, patent lawyers who know no more than laymen of general business matters; corporation lawyers who find their best efforts hardly sufficient to keep track of their clients' shifting rights in this, that, and the other state; criminal lawyers, in both senses, whose special field is the further obfuscation of the juryman's intellect. There are highly respectable "family solicitors" who

act as guardians for minors and incompetent persons or manage their estates; and others, not so highly respectable, who depend on "chasing ambulances" or collecting bad debts. Some men do little except to look up real-estate titles. Some merely present to juries cases which their partners have worked out. Besides these, there still remains the old-fashioned country lawyer, who

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A typical country lawyer in his office. The country lawyer's energies are employed in giving advice to the farmer or the small-town citizen in the everyday affairs of life

advises his neighbors in all their everyday affairs and specializes, so to say, in common life.

All these various sorts of lawyers, moreover, more or less confine themselves to special kinds of court. One takes police cases; another argues appeals to the Supreme Court. Still a third does not go into court at all, but makes a living by keeping people out of trouble instead

of getting them out. There are lawyers who are business men, and lawyers who are scholars, and lawyers who are dramatists. Altogether, every possible kind of man finds a place somewhere in the law.

Now it so happens that the money prizes of the law are very large, far larger than those of any other profession, except perhaps the profits of a "best-selling" author on a single book, or a singer at the height of, usually her, powers. Certainly of all professions in which high success is possible to many persons at the same time, the law offers the greatest material rewards.

The general scale of these rewards is well shown by a recent study made by one of the foremost law schools of the country concerning the professional incomes of its recent graduates. This indicates that the average graduate of any first-class institution, if he goes into the newer parts of the country where competition is not severe, will make about eight hundred dollars the first year. This is just about what he would make if he went into teaching or the ministry, or took any salaried position for which he had been especially trained. If, on the other hand, he chooses to make his way in an old community already amply supplied with legal talent, he can hardly expect to receive more than five hundred dollars for his first year's work. In other words, he will be about on the lower limit for college graduates, and far below the well-trained merchant of the same age. Some young lawyers even work a year or two for nothing for the sake of starting in a good office.

Eight years after hanging out his shingle, it seems to make little difference where a man has located. If he has managed to make a living at all, he will, on the average, be earning about four thousand dollars a year, no matter whether he has grown up with a new city or made

a place for himself in an old one. Two years later, and ten years out of school, the successful lawyer has raised his own wages another thousand and is now halfway along toward five figures.

He is now just passing thirty-five years of age, has established himself as a family man and citizen, and made his place in his profession. Most men remain for the rest of their lives at a good deal the same level which

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In a large law office. At the outset of their career some young lawyers give a year or two of work for the opportunity of a good start with a well-established law firm

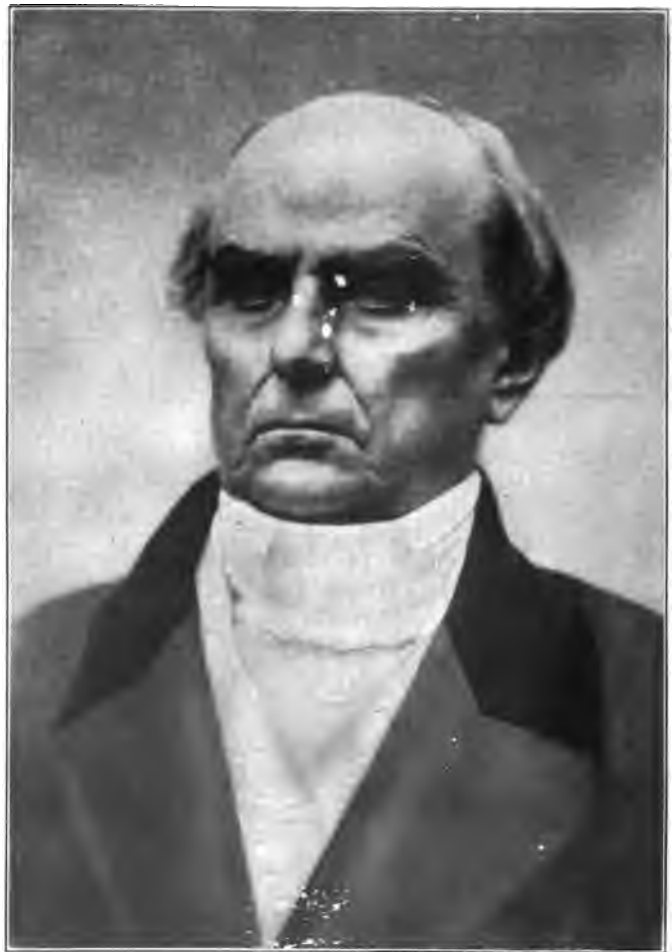
they reach before they are forty, and do not especially increase their earning power after that age.

A few favored persons go very much beyond the general mass even of the distinctly successful. There are several lawyers in this country who have been paid ten and twenty thousand dollars, not for carrving a case through

the courts, but simply for giving an opinion on it. Men take "retainers" of a thousand or two thousand dollars, not for doing any work, but merely for keeping away from the other side. Fifty thousand dollars, or even a hundred thousand, is by no means an uncommon fee for some of the more eminent members of the bar. A prominent criminal lawyer is reported to have demanded, as the price of defending a certain criminal gang, the modest sum of two hundred and fifty dollars a day.

"All that a man hath will he give for his life," especially when confronted with the imminent prospect of being hanged; and most of us, when we have saved our own property or annexed another man's, are glad to divide pretty generously with the counselor who made it possible. It is said among lawyers what when a certain eminent member of the New York bar retires, his practice will support a hundred lesser men; while still another is thought to spend fifty thousand dollars a year on his office force, and to clear more than a half million for himself.

Even so, as wages go in this country, successful lawyers are not especially overpaid. Taken as a group, they are the ablest men of the community and the best trained. But one has only to match up the leading members of the bar in town, city, state, or nation with the most successful business men in the same group, to see that business profits much surpass professional fees, though the lawyers are on the whole the better men. The chief justice of the Supreme Court of the United States is paid only fifteen thousand dollars a year, as against forty thousand for the corresponding office in England. Daniel Webster, who was one of the small group of really great Americans, is said rarely to have made ten thousand a year out of his practice. These sums are but drops in the bucket to an Astor or a Carnegie.



The Halliday Historic Photograph Co.

DANIEL WEBSTER

Though a man of ample learning in the law, he is probably the highest American example of the type of lawyer who does his best work as an advocate in the courtroom and before juries or as an orator and politician.

Of late years, however, law and business have been so closely allied that many of the prizes of the business world have become also prizes of the law. At least two great American banking firms contain men who began life at the bar. The leading patent lawyer of the country became head of the great Bell Telephone System. A vice-president of one of the most important railways of the continent is also the author of a standard work on corporation law. In every community, lesser men, on a smaller scale, have made their legal training the stepping-stone to business success.

The immaterial rewards of the law are also, probably, higher than those of any other profession. Reputation, fame, a worthy and not unimportant part in the world's work, are no small part of the professional man's fees; and of these the lawyer gets quite his share. Compare, for example, the number of lawyers who hold high public office with the numbers from any other profession or from all others combined. Almost half the members of the various public service commissions of the country are lawyers, as against a quarter who are engineers and another quarter from all other callings combined. If we leave out military heroes, the Presidents of the United States have been virtually all lawyers, and the members of Congress either lawyers or business men. Other men have to choose between fame and money; the lawyer "eats his cake and has it too."

Two causes are, therefore, always at work to draw large numbers of young men toward the law. One is the great prizes which it offers, both material and immaterial; the other is the fact that, as we have seen, the law requires no special gift the lack of which warns the aspirant that he has no chance. One learns early that he is not going to succeed at grand opera. By the time he is halfway

through his first year of algebra he knows that nature never meant him to figure the stresses of a truss bridge. But no such obvious "No trespassing" signs warn the predetermined failure in the fields of law.

The result is that the law, of all professions, is the most desperately overcrowded. In 1890, in the United States, there was one lawyer to each eight hundred persons, children included. Ten years later the number had risen to one in each six hundred and fifty. In 1910 there was one legal adviser to each five hundred potential clients; and the number holds at about that level up to the present day.

The other civilized countries of the world — England, France, and Germany, for example — have about one lawyer to five or six thousand inhabitants; or, roughly, about one tenth as many as has the United States. We do, to be sure, really need several times as many lawyers as other countries, largely for the reason that we are running forty-eight legislative experiment stations besides the national Congress, where other nations have only one each. But even so, we hardly need ten times as much legal aid. To study law has, with us, become a fashion or a mania.

The result is that of the two or three thousand young men who are every year admitted to the bar in the United States, fully a third never even start practicing. The remaining two thirds divide among them the work which a fourth of their number could easily handle. It is said that in Chicago, where there is one lawyer to every three hundred and fifty persons, a thousand men do virtually all the legitimate business, and four thousand pick up odd jobs or prey on the community. In Boston, only one lawyer out of five gets his living out of the law alone.

As always in such cases, the weakest goes to the wall.

The capable and well-trained men absorb all the business, almost as if the others were not there. The ill-trained and incapable have thrown away the time and money which they spent in preparation, and have merely spoiled themselves for any useful work. For the rest of their days they live on the scraps which their betters will not touch.

The practical problem of the would-be legal light comes down, therefore, to this: Assuming that he likes the

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A high-school class. Since the law requires no special talent, the young man in high school who aspires to the bar finds no special deficiency in himself to warn him from an already overcrowded profession

routine work of the law and is attracted by its prizes, can he reckon on beating nearly two-thirds of his competitors and at the worst getting into the first half of this group? It is neck or nothing in the law. Not to succeed highly is to fail.

The first consideration is the training. The really

first-class law schools assume that their students have already had four years in a high-grade college, where they have focused their work on their future vocation. The languages, history, economics, government, writing, public speaking, and the like, pursued diligently during at least four years, together with a very considerable social experience, are the only adequate foundation on which to build the professional course. To be sure, men have done with less, especially in the old days before the pace became as fast as it is now; for there is always the exceptional man who breaks all rules and is a law unto himself. But the ordinary mortal, who does not begin to shape his career in the high school, follow it with a single eye through college, and graduate from a good law school, will rarely make up his handicap and compete with better trained men.

This does not mean that there is not a field for the weaker institutions, or even for a few of the correspondence schools. For some the law is only an opening, or a cloak, for politics. There are many persons, trustees, guardians, school officials, business men, court reporters, notaries, police officers, legislators, one might go on at great length with the list, who without ever intending to practice the law find it useful to know something of its principles and its detail. There are also men in out-of-the-way places, or among special groups or nationalities, who frankly turn their backs on all the great prizes of their profession and are content to do a useful work in a humble way. For such as these, the lesser preparation may be enough.

But if one wants really to make his living out of the law alone, and to have at least a chance at some of its fair prizes, he will have to reckon on eight or ten years beyond the high-school course with virtually no earnings.

It is either this or a lifelong handicap. Whatever may have been true in the past, high success in the law to-day is conditioned on ample preparation, and the requirements grow more severe with each passing decade.

Yet when all is said concerning opportunity and preparation, the brain is the thing. Men have been helped to success in the law by a smooth tongue and a ready wit. Trial lawyers, in particular, commonly have a special knack of making other people see facts through their clients' eyes, which has as much in common with good salesmanship as with any professional gift. But, in general, any member of the bar does well just about in proportion as he can work longer and faster than his rivals.

In spite of our well-meant democratic fiction, men do differ enormously in native ability. John Stuart Mill was reading Greek at the age when other lads are sadly bothered with English. D'Alembert, who was a foundling and had no fair chance at an education, worked out for himself, *de novo*, the mathematics which most of us hardly master with the best of teaching. Macaulay could repeat an ordinary page word for word after a single reading, and probably carried in his memory from fifty to one hundred times as much data as an ordinary educated man. In the examinations for mathematical honors at Cambridge University all candidates are given the same time and all have had the same class instruction. But the "senior wrangler" often solves nearly twice as many problems as his nearest rival, and more than thirty times as many as the lowest man who tries for the prize. Yet even the latter is a great deal better than an average student.

Now the practice of the law is a sort of perpetual prize examination in the solution of legal problems. If the

best men actually clean up thirty times as much work as the general run, they are fairly entitled to thirty times the pay; and, as we have seen, they commonly get it. Unless, therefore, one has by nature a fair amount of this high native capacity, so that he can turn off great quantities of work after he has been taught how, there is not much use in his spending time studying law.

Such ability ought to begin to show during the grammar-school course. Save in very rare cases, it must show throughout the high school. There is, to be sure, the occasional exception to all rules. There may be bad preparation, bad eyes, bad health, other demands on time, the temporary storm and stress of adolescence. But, in general, the boy or girl who cannot "get up" and pass easily any high-school subject lacks either the mental bite or the strength of will which have to be taken for granted in the law.

Not all subjects, however, are equally significant. Many a successful lawyer has fingers that are all thumbs, and cannot do more than passable work at manual training. English literature and the modern languages are allied to the fine arts. The legal mind may or may not take to them easily. The sciences are in general a somewhat special gift.

The proper field of the schoolboy lawyer is in the classics, history, and mathematics. Latin and Greek, as we have already seen, are an especially good test of general professional quality. Since law is "the most so" of all the professions, these subjects are preëminently the test here. Horace is traditionally the lawyer's author, as whist is his traditional game. History is a test because, like the law, it deals with human nature and human institutions. Mathematics is a test, because both mathematics and the law are based on logical analysis.

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A class in carpentry. That a boy is not particularly brilliant in the manual-training class has little or no significance in determining whether he can become a successful lawyer

In other words, while the would-be lawyer should be able to handle almost any subject, he ought to do especially well with his Latin, his history, and his mathematics. If he cannot do this much — well, there are plenty of other kinds of work which interest the same sort of person as does the law and do not require anything like as much brains.

Practically, then, one feels his way along. He likes the law, and he stands close to the head of his class. Year after year, as the less gifted students drop out, the competition with one's mates becomes more exacting. So long as one remains near the top of his group, all is well. If he holds the gait through college, he is pretty certainly good legal timber. But when a student begins to lose ground, he is probably reaching his limits. The rivals who are beating him at getting marks will beat him still worse at getting clients.

But of course one measures himself against his mates not only in the classroom, which is on the whole the best proving ground, but also in all sorts of school activities. In the course of time, unless one is incurably blinded by self-conceit, he has rated himself pretty accurately in comparison with his fellows. Then he decides in how fast company it is worth while to travel.

For the law is preëminently a struggle between men. The physician fights disease; the clergyman contends against natural depravity; the engineer and the man of science are engaged with the forces of nature. But the lawyer, in large degree, is matched against another human being, and under conditions which leave little question which has won. If one cannot beat his mates at school and college, good, bad, and indifferent as they come, he can hardly compete with the highly endowed group assembled by the great prizes of the law.

On the other hand, though in sheer brains the law

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The Children's Court, New York. The courtroom is the scene of a battle of wits, man to man, in which the ablest mind wins

makes more implacable demands than any other profession, it does in part make this up by going a little easy in matters of personality and temperament. Several eminent lawyers have been men of slender physique who could hardly have endured the rough and tumble of, let us say, engineering; or stood up under the labors of a busy general practitioner of medicine. A few men also have gone high in the law who were too awkward, shy, or unsocial to have got on at all as clergymen or teachers. After all, we employ a lawyer whom we do not like, if only he does his work, as we do not employ persons with whom our relations are less cold-blooded.

There is, therefore, a type of youth, clear-headed, scholarly, but not "popular," who in spite of the fierce competition of the law may do better there than at one of the more "sociable" vocations. Clergyman, physician, and teacher need to be loved. It is sufficient for the lawyer if he is feared, while few men are judged so entirely on their performance alone.

Women have, in general, not taken kindly to the law. Although women lawyers number something more than a thousand in the entire country, they are only a little more than one to each hundred of their learned brothers. Indeed, the proportion of women to men is smaller here than in any other professions except those of the engineering group. Even the women clergymen outnumber the women lawyers more than three to one; while women teachers are upward of three hundred times more numerous.

Offhand, one would rather expect the contrary situation. So many women nowadays are in business, have property of their own to manage, or are in need of legal aid of one sort and another, that there should be an ample special field for the woman counselor and attorney, even

if she does not compete with men in general practice. As a matter of fact, the opportunity for women lawyers seems to be closely limited. Other women do not want them; and the men, naturally, prefer other men. Moreover, they are of necessity cut off from all the great prizes of the profession.

A few women have done comparatively well, largely at office practice for women clients and as spokesmen for groups of women before legislative bodies and the like, and there will always be a steady, if limited, demand for this sort of work. As a whole, however, level-headed women seem to begrudge the long preparation for a career which is of the least possible use to the nine tenths of them who marry, and to find other sorts of work more worth while.

CHAPTER X

The Ministry

IN two respects the ministry stands in marked contrast to the law: it is not overcrowded and it is underpaid.

To be sure, there are twice as many clergymen in these United States as are needed to do their work. But there are three times as many churches; and so long as three struggling bodies whose differences of polity and doctrine are inappreciable to the outsider continue to occupy the space which might be comfortably filled by one, virtually any man who cares to fit himself for the ministry is sure of some sort of a pulpit. In addition, where there is any oversupply it is so promptly absorbed by the denominational schools, the Young Men's Christian Association, and the missionary field, that of late years there has had to be an organized campaign to persuade enough men to go into the profession.

Of great money prizes, the ministry in this country has absolutely none. Hardly a dozen men in the entire continent surpass the ten thousand a year mark; it is a rare preacher who goes beyond five. The strong city churches run to three or four thousand dollars a year; the weaker drop down to twelve and fifteen hundred. Country churches and those in the home missionary field are as likely to pay less than a thousand as more. All over the land, in the little places, are college graduates with three years of theological training who are preaching for five or six hundred dollars a year. At least one important denomination is trying vainly to maintain a minimum wage of eight hundred dollars.

Missionaries in the foreign field may have to cut themselves off from civilization for eight hundred or a thousand dollars as beginners, with the chance that at the end of half a lifetime of hard work they will reach only twelve or fifteen hundred. If they show high executive skill they may rise to administrative positions — at half the wage they would get in store or factory. Even so, they not seldom cut even this small stipend again in halves to get back to the practical work of their missions.

A man like Henry Ward Beecher could have made any sum he liked as a jury lawyer, for he was one of the foremost popular orators of his day. Instead, he declined lecture offers at five hundred dollars a night on the ground that they interfered with his church duties. In general, the great preachers of the country sacrifice to their calling from a half to nine tenths of their potential earnings in

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Offices and waiting room of the Young Men's Christian Association in a large city. This institution absorbs many candidates for the ministry, thus helping to create a demand for men in that profession

the law; while the heads of the great institutional churches make a like reduction from their possible earnings in business.

At the other end of the scale, a man takes from five to ten years out of his working life in preparation, and then receives no more for the remainder of his days than if he had sold goods or learned a trade. For it must always be borne in mind that the underpaid clergyman is a much better quality of man than the average clerk or artisan; one who, if he had taken to counter or bench instead of pulpit, would have been the last man laid off in bad times and the first to be promoted in good. Whoever questions the high practical efficiency of the humbler clergy and their wives, has only to compare what they get out of life and what they do for their offspring with what, for example, the artisan class does on the same wage.

Besides all this, there is "the dead line of forty." The churches want young ministers and are impatient of the old. The lawyer or the engineer or the business man, as he comes to the less active time of life, finds that his matured experience and judgment are worth more in the market than any youthful vigor. He works shorter hours, yet he commands a higher wage. Not so the clergyman. At just about the time of life when his children are the greatest burden and when the need to save for his old age becomes especially obvious, his earning power begins to slacken. In this, the clergyman is more like the artisan than like the professional man. Each, as a raw youth, is worth nearly as much as a mature man, and each tends to be laid off before his work is anything like done.

However, along through the middle range of salaries, say from two thousand to four thousand dollars, incomes are somewhat more justly proportioned to what the men

are actually worth. As for the celibate clergy, having no wives to spend their money for them, they are content to suffer want that others may the more abound.

The first fact, therefore, for any prospective clergyman to face is that, if he follows his call, he will probably be a good many dollars the poorer for it.

Not only, however, must the clergyman, under present conditions in most churches, surrender many of the blessings of civilization which only money can buy. He must, in addition, give up much else that makes for fullness of life. In particular, he too often has to forego many of the rewards of the good citizen and neighbor.

For the heart-breaking thing about the ministry is the shortness of the pastorate. Time was when a clergyman settled down to his place like a lawyer or a doctor, not expecting to move till he retired to the leisure of an honored old age in the same town. He saw the generations come and go, as the family solicitor or the family doctor took on the grandchildren of his contemporaries.

That time has long gone by. In the author's own church, three men covered the first century, each giving virtually his entire professional life. It took seven to span the next hundred years, yet even these would now be thought to have had fairly long pastorates. There are churches that expect to make a change every two or three years. Seven ministers in nine years is on record.

The result is that too often to the clergyman are denied in middle life some of the best rewards of faithful service. He tends to become a bird of passage, with no permanent dwelling of his own around which grow up the associations and memories of a life, with no special stake in any one community in which he has worked long and which he can feel that he has helped to make. Rarely can he hope to see much of the fruitage of his

labors. All these are sources of happiness which only the aged can fully understand.

On the other hand, certain non-material rewards of the ministry are very great, much greater, probably, than those of any other vocation. To begin with, no human occupation, not even homemaking, combines so much variety with so little drudgery. The weekly sermon brings the joy of creative expression which is the high reward of the literary man, yet without the brain-bleeding necessity of writing something every day of the week and reading the proof afterwards. Its delivery carries the thrill of the actor, without the deadening repetition of the six evening performances and two matinées. The pastor is a teacher who does not read examination papers or maintain discipline. He is a physician, but to souls that live, not to bodies that beat him in the end. Neither physician nor lawyer enters into such intimate or rewarding relations with his fellow men, or shares so fully the great experiences of their lives.

Moreover, the clergyman is also an administrator. Now the one great and permanent satisfaction which the administrator has, in his round of infinite detail, is that he is building his life into a business enterprise, a political party, a social group, or an institution, which is in itself worth while, and which will last after he himself is gone. But the clergyman is building his life into the greatest and most enduring of all human institutions; and this quite aside from his own conviction that he helps to bring in the Kingdom of God.

Curiously enough, too, the ministry is the most adventurous of the professions. The missionary on the frontier, the worker in the foreign field, even the pastor of some city churches, meets experiences that must make the lives of other professional men seem tame. Every

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REV. DR. WILLIAM STEPHEN RAINSFORD

The popular rector of St. George's Church, New York City—"The Little Church Around the Corner." The modern city pastor is the intimate counselor and guide, the physician and leader of the souls of men of the most varied sorts.

one who reads the newspapers knows what happens when there is an outbreak in any barbarous community. Every student of geography knows how large a part of this globe was first explored by men in black coats.

For various reasons, therefore, the ministry is a highly attractive vocation. No one, I am sure, can live much among professional men without feeling that if the clergy as a whole are the worst paid of all laborers, they are also as a whole the happiest in their work. Certain it is that in social position, and in everything else that makes civilized life worth living, the clergy are incomparably better off than any non-professional group on the same incomes.

But while the ministry stands in striking contrast to the law in the rewards which it provides, it is remarkably like the law in the sort of men that it attracts.

In general, the clergyman, like the lawyer, has no special gifts. A few men in both professions are natural orators; and for these, in each profession, there is a somewhat special field. For the most part, however, clergymen and lawyers alike are sound, all-round men, with enough general ability to master the particular matters which they need to know. Anybody, in short, with brains enough for any profession can learn to preach.

The standard of native ability for fair success in the ministry is not so severe as in the law. Roughly speaking, the boy who reaches the middle of his class in high school or college is probably up to the standard. A few clergymen have reached more than average success whose scholarship was below even this grade.

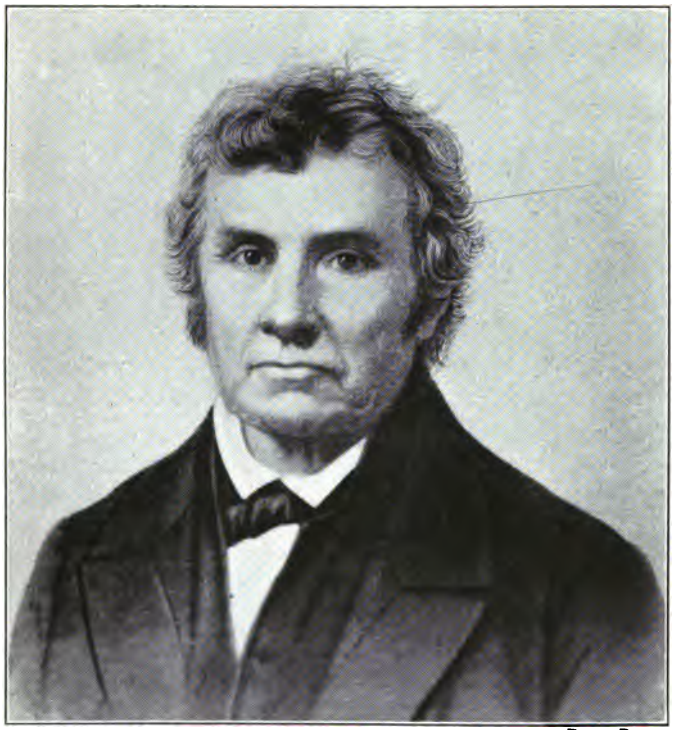
As for special quality, that too differs little from the symptoms of legal talent. Weakness in mathematics is a less discouraging sign than for the law; literary ability

is, on the whole, a more hopeful one. In general, the clergyman-to-be should be strongest in history and the humanities and not conspicuously weak in most other things. For the distinguishing mark of the clergyman is not intellectual but moral. His special quality lies in temperament and character rather than in brain.

Time was when the working ministry contained great scholars. That time has long gone by; the scholars now hold professorships, and teach instead of preach. Time was also when the clergy were leaders of human thought — prophets, reformers, philosophers, statesmen, and even men of science. This also is no longer true. The modern clergyman is a practical, common-sense, likable being, tactful and kindly, not especially learned, very little of a priest and a great deal of a man.

The tradition still lingers that the clergy are a lot of flat-chested anæmics, addicted to worsted slippers and sore throat. As a matter of fact, the profession has always attracted men of the type of Livingstone, Borrow, the missionary bishops of our own West, and the itinerant outdoor revivalists "who first knocked the sinner down, and then dragged him to the throne of grace." Not even the engineers have a better record for physical courage and hardihood.

Of late years, moreover, there has been a marked tendency for college athletes to take up religious or philanthropic work, with the result that most cities nowadays could put into the field a clerical nine or eleven that would be too much for a team drawn from twice their numbers in any other vocational group. The old cricket-playing, fox-hunting type of parson tends more and more to replace the pious scholar. The result is such things as Dr. Grenfell's Parish and Archdeacon Stuck's conquest of the highest mountain peak in North



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REV. PETER CARTWRIGHT — An old-fashioned camp-meeting revivalist

Peter Cartwright, presiding elder in the Methodist church and member of the legislature of Illinois, was equally renowned as preacher and as pugilist.

America, after some of the best climbers of the continent had tried in vain a dozen years.

Yet when all this has been said, there still remains one essential quality which every clergyman ought to have, but which a lawyer or a doctor may lack completely and yet "arrive." This quality has no accepted name. "Capacity for leadership" hits it as well as anything.

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DR. WILFRED T. GRENFELL — The doctor-missionary

The modern pastor, whether his work is done in the foreign field, on the frontiers of civilization, or in the city churches, has chosen a career of the most active and adventurous character

Just what this quality is, nobody seems yet to have made out. But of its importance there can be no question. We all recognize it in some people, and its lack equally in others. Some men there are whom other men obey. They may not be at all clever. Oftentimes they are altogether wrong-headed and foolish; and they lead their followers into all sorts of absurdities. Popular leaders of all kinds have it, politicians especially. One has only to watch the next wild-eyed religious or political or social obsession that sweeps the country to see the quality at its best, and worst.

In other words, in some way, we do not know how, certain men do succeed in moving other people's wills as certain other men cannot. We see it in the nursery, where one child controls the rest, and leads them into varied mischief that they would never have thought of themselves. It is not the strongest, or the oldest, or the brightest, or the best behaved, among children any more than among men. The quality appears almost like a special gift not unlike an ear for a tune. Evidently, however, it is not always the same thing, but several different ways of getting the same result.

Whatever this mysterious quality is, the successful clergyman has need of it. He has need of it so much that without it, only rare qualities, and those in large measure, will make up for the lack. Fortunately, the capacity need not accompany high scholarship. Fortunately also, its presence is easily proved on ball field and playground.

In other words, the successful modern clergyman, as has been well said, is "a specialist in manhood," as healthy-minded, brave-hearted, strong-bodied a creature as any vocation can show. He must have manners, tact, social instincts, and a genuine and spontaneous liking for people, together with some scholarship. Any boy who

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Even in childhood the natural leaders show their quality

can honestly assign himself to this type is a fair candidate for the ministry.

But the essential element is his "call." A personal piety that makes religion real, and a desire for service that makes the work its own reward, are the indispensable prerequisites. It ought not to be difficult for any youth to try himself out on this point also.

Yet on the other hand, a youth may well beware of expecting, in these days, any "call" in the old-fashioned, supernatural sense. To the modern youth to whom the ministry appeals, the call tends to have in it less of the compelling voice from heaven, and more of a clear-headed stocktaking of opportunity and capacity for the work proposed. The time has gone by when piety and zeal alone, however great they be, will offset a lack of training, or a natural endowment of the right quantity and kind. Indeed, we are coming to feel that all men, from

the clergyman to the mechanic, ought to have some real "call" to their particular task; a real call, that is to say, in the sense that each alike should have sifted out his capacity and be fairly sure that, on the whole, he is probably on the way to his best work. When this feeling becomes a deep-seated conviction, based not on fancy or on desire, but on hard fact, it has all the essentials of a "call" to that work. That one is likely to minister acceptably, is after all the best sign that any youth is appointed to any task.

For men who are, in general, of the clerical type, but who take less kindly to books and ideas than a preacher must, there is a considerable field in the Young Men's Christian Association, the Boy Scouts, various sorts of social service, and the like. For those who, to this equipment, add some administrative skill there is a considerable opening as executive officers of organizations of various philanthropic sorts. All these involve certain parts of a clergyman's work without the rest, and without, in most cases, its most precious rewards.

As a profession for women, the ministry is some four times more attractive than the law. That is to say, there are upwards of four thousand clergywomen in the country, so that about one pastor in thirty is of the sex that furnishes a majority of the church members. However, the different sections of the country and the different religious bodies vary so much that this bare fact has little meaning.

A few theological schools make rather a specialty of training women for the pastoral side of the ministry, and there is in many places a demand for trained women as lay workers. But the woman preacher, quite as much as the woman lawyer, is virtually cut off from even the moderate successes of the profession.

The fact is, the woman who might become a minister, like the woman who might become a lawyer, commonly prefers to be something else. As we shall see more fully later, the legal-clerical type of person is very nearly the same as the pedagogical type. Women preachers and lawyers *in posse* are women teachers *in esse*. Although free to choose, they almost universally prefer the desk to either the pulpit or the bar.

Not a few also, who, if they had been men, would have been attracted to the ministry, now turn to various sorts of social service. In fact, just now the number of young women just out of college who aspire to this kind of work has become so great that in many places two or three have to be turned away for every one that is taken on. In spite, however, of vast numbers of incompetent amateurs, who after an amusing and highly educative experience of a year or two become discouraged and drop out, there is in the field of social service a constant demand for trained and permanent workers. A great deal of such work, however, both of men and of women, is hardly of a professional sort.

CHAPTER XI

TEACHING

NOT all who teach are teachers. The instructor on the piano, in talent and mental quality, is first of all a musician. The leader of a class in mechanic arts may be an especially well-equipped and intelligent artisan who could make a better living outside the schoolroom. Any one who knows anything can give some sort of instruction to other persons who know less.

At the other end of the scale, the professors in the technical and graduate schools are largely physicians or engineers or lawyers, men of science, or scholars in some special field. In fact, there are several professorships in this country, and many more abroad, whose holders are not expected to do any class work at all. All these men, however wise or skillful their instruction, find their real work and make their reputations as mathematicians, or historians, or Sanscritists, or what not. For our purposes, they belong with other mathematicians, historians, or Sanscritists who do not happen to be teaching.

Practically, then, we shall count as teachers only those persons who, however great their learning, are interested primarily in their learners; who teach, not their subjects, but their pupils.

With this limitation, it becomes clear at once that the sort of person who does well at teaching is very much the same sort of person as he who does well in the ministry. He has the same zeal for service, the same need of tact and sympathy and manliness. Indeed, of late years there has grown up the same demand for the college

Hartsook

DAVID STARR JORDAN — Man of science, university president, administrator, lecturer, reformer

An example of the all-round ability in professional fields

athlete, and the same unfortunate tendency to lay him off as he comes to "the dead line of forty." Historically, teaching has always and everywhere been in the hands of the clergy. It still remains in the hands of the same kind of man.

In other respects also, the two professions strongly resemble one another. They demand very much the same grade of native ability, and of very much the same sort. Neither requires much special talent. In both, the supply of men tends rather to fall behind the demand than to run ahead of it. And finally, both professions, as we should guess from their being undermanned, are underpaid.

In his wage the schoolmaster has a slight advantage over the clergyman. To be sure, in the handful of especially well-paid positions the clergy are a little ahead, since five thousand dollars a year is about the upper limit for teachers who are not administrators. The general run of wages, grade for grade, is about the same; but nowhere in the more thickly settled portions of the country do schoolmasters work for the wretched pittance of the back-country clergy. The worst-paid college graduate with a family has nearly twice the income as a teacher as has his brother of the cloth. Practically, therefore, any youth who feels the call to the ministry, and yet has not much likelihood of rising out of its lower levels, may well pause and consider whether he will not be equally useful to the community and a great deal more valuable to his family if he chooses the sister profession.

Yet while in temperament, in character, and in income the pedagogue has most in common with the parson, intellectually he inclines more to the quality of the lawyer. No one can teach successfully without a good

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A university professor lecturing to his class. The university professor who conducts a class, though he be an expert scholar in his special field, must be interested primarily in his learners

deal of that power of analysis and clear statement which is characteristic of the legal mind, and which, as much as by any one thing, is proved by ability to handle mathematics. Practically, then, the successful teacher is a man who would have done moderately well either in the pulpit or at the bar, but who for sufficient reasons of his own chooses the blackboard. Essentially, he is a mixture of the legal and the clerical type. All that has been said of either of these professions applies with almost equal force to teaching.

Nevertheless, a man may be a good lawyer or a successful preacher and yet fail altogether at teaching. Bishop Brooks, for example, was completely beaten by a class of boys; while the number of clever and admirable women who cannot teach is beyond count. Such persons

apparently fail in some measure for lack of that analyzed "capacity for leadership" which we have already seen to be essential to the clergyman but not to the lawyer. Deeper than this, however, lies one natural gift which makes or mars the teacher's career.

With teaching, then, we come for the first time to a profession for which high general intelligence, character, and good will are not alone sufficient. There has to be also a certain special quality. This special quality, in the case of the teacher, lies in the voluntary attention.

There are two general types of attention. Stupid, scatter-brained, weak-minded, ill-trained persons have, of course, little control over their minds at best. Their attention is always wandering, like the minds of school children on a sleepy afternoon. But capable and trained workers are by no means all alike. Some of them, as they set themselves to a task, "narrow down the attention to a point." They fix their minds on their immediate work and become blind and deaf to all besides. Many such persons are characteristically "absent minded." That is to say, they tend always to think intently of one thing only, even when they are not at work. Many, however, are able to turn this absence of mind on and off at will, and are as alert as other people. This sort of attention is the "concentrated" type.

Other equally efficient workers "attend" in a different manner. They are able to put their minds on one matter without shutting out all others. They think as hard as other people about the one important matter, but they do not completely stop thinking about the rest. In other words, they tend to be more aware than the other sort of what is going on in their own minds. This is the "diffused" type of attention.

Now for most purposes of life, one type of attention is

practically as good as the other. So far as either has any advantage for hard intellectual work, the concentrated type is possibly a little better, as it is also the more common among men who work much by themselves. But no one can succeed at teaching unless his attention is of the diffused type. The ability to think of several matters

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Teaching a class in the grades. This scene makes it obvious that a teacher, to be successful, must have that gift of mind which enables her to think of more than one thing at a time

at once seems largely to be born in us. Obviously, without this gift it is uphill work keeping school.

Even more important for the teacher than the proper attention type, is a perfect normality of temperament. Teaching is most trying work. Adults are never more unreasonable than when they are concerned with the interests of their offspring. Children are more unreasonable and more merciless than any adults. Any oddity of speech or manner, any shyness, nervousness, or irritability, any unevenness of temper that makes one a different person to deal with at different times, any undue

sensitiveness or self-consciousness is a far greater handicap to a teacher than to a person in any other profession. Variety is not the spice of life to the young, to whom everything is new; and the best teachers combine a steady-going, almost plodding, intellect with an equally steady-going and unassailable temper.

Fortunately, however, no matter how unaware one may be of his other qualities, one can hardly be queer, or shy, or bad-tempered without knowing it. If after that he persists in entering the teaching profession, his inevitable failure is his own fault.

Fortunately, also, teaching is the easiest of all professions, except nursing, in which to try one's self out in advance. There are younger members of the family to be helped with lessons. There is coaching to be done on the playground. There are Sunday school classes to be taught, and tenderfoot Boy Scouts to be initiated. In one way or another, any boy or girl who thinks of entering the profession can make sure of two points — whether he is going to like teaching, and whether he has the sort of mind and temperament that makes good teaching possible.

Persons who find they like teaching, and for whom the richness of the immaterial rewards offsets the meagerness of the wage, will in the end have to choose among four well-marked subprofessions.

Lowest of the teaching group—lowest, in fact, of all the professions—are the teachers in the common schools. A few of these are college graduates; and from this they drop down to those possessing only the slender equipment of two years beyond grammar school. Their wages vary to correspond, nearly eight hundred dollars a year on an average in California; four hundred and above in Pennsylvania; less than two hundred in two of our states,

whose names their inhabitants will, naturally, prefer not to have mentioned. Yet there are a few localities where the demand for especially well-equipped grade teachers has carried the stipend over the usual high-school level.

Except for the principalships of the largest schools, men have virtually abandoned this field. There is also a tendency in some parts of the country to "unionize" the grade teachers, and to make teaching a trade instead of a profession. This group, unlike the rest, is a good deal overcrowded.

A second group in the larger body is made up of the specialty teachers. These are people who in other respects are like the ordinary class teachers, and who could, in general, do the ordinary grade work with rather more

Brown Bros.

Tapestry designing in a school of applied design. The instructor of such a class belongs to the group of "specialty teachers"

Brown Bros.

A class in cooking. The girl who discovers in herself an aptitude for a special field in teaching will receive the higher rewards in her chosen profession

than average skill, but in addition have some special talent which they have developed on the teaching side. Here belong the teachers of music, drawing, gymnastics, and the group of unrelated arts which by a strange perversion of language we call domestic science. This division of the profession is less crowded than the first, and better paid. Any girl, therefore, who looks to teaching below the high-school level may well make a careful inventory of her natural gifts to see whether she can specialize her field.

Third come the high-school teachers and the college teachers who are not members of other professions or primarily scholars. These, in addition to the qualities common to all successful teachers, have cultivated some special group of subjects. Nearly all the positions in this field that are much worth having are limited to college graduates; some states so limit them by statute. Here

is the place for the sort of person who might also do moderately well at the gospel or at law.

Fourth and last come the principals, head masters, college presidents, superintendents, inspectors, and the like. A portion of this group belong to the teaching profession without being teachers. Some of them, it may be guessed, could not teach if they tried. Many of them, however, have not tried, but have fitted themselves directly for their work as directors of other people. Here, therefore, is an attractive field for men of business capacity and executive skill who are interested in education but have not the gifts of temperament which make the teacher. Most of such positions, however, are filled by promotion from the ranks. They are, in fact, the prizes of the profession to which the classroom instructor looks forward.

Evidently, then, teaching covers the greatest range of natural ability of any of the professions. At one end stands the crude and ignorant girl, a cog in a vast machine, working for half the wages she would make at general housework; at the other is the university president, responsible for the spending of three or four millions in his annual budget. Between these two, every one who has the call to teach can find a place at some level.

Teaching is preëminently the woman's profession. Women teachers in the United States outnumber all other professional women together by three to one, and they outnumber men teachers from the same proportion up to ten to one.

Among men, lawyers, doctors, clergymen, and teachers are about equally numerous. Among women, lawyers, doctors, and ministers together are less than one twentieth as numerous as teachers. In other words, judged by statistics, the teacher's desk is thirty times more attractive

Courtesy of George Herbert Palmer

ALICE FREEMAN PALMER

That women teachers are not shut out from the larger prizes in their profession is brilliantly demonstrated in the career of Mrs. Palmer.

to women than the physician's office, fifty times more attractive than the pulpit, and no less than three hundred times more attractive than the bar.

Nor are women teachers, as in most of the other professions, cut off from the larger prizes. In New York City they are, by law, given the same pay as men, and the salaries of the class instructors run beyond two thousand dollars a year; those of the principals beyond three. The ten and fifteen thousand dollars a year, which falls to the head mistresses of a few ultra-fashionable girls' schools, is quite beyond the dreams of any mere man principal. The presidents of Mount Holyoke, Wellesley, and Bryn Mawr colleges are all women. So, too, for some years, was the superintendent of schools in Chicago, at ten thousand dollars a year. Throughout the country, women are school principals, town, county, and state superintendents, school inspectors, professors and heads of departments in colleges, or are managing educational enterprises of their own.

Nowhere in the teaching profession, probably nowhere in any profession, has any man had so brilliant a career as was that of Alice Freeman Palmer, nearly a half century ago. At twenty-two years of age she was at the head of an important high school; at twenty-six she was president of a college, with a salary of four thousand dollars a year.

CHAPTER XII

The Medical Group

WITH the medical professions we pass to a different type of man. Lawyer, clergyman, and teacher are all much the same sort of person — a little more here or a little less there changes one into the other. All three are, so to say, humanists; they deal with individual human beings, and they make their way to success largely by their understanding of personality.

The physician also deals with persons. But unlike the client or the parishioner or the pupil, the patient, besides being a person, is also a thing, a highly complex and delicate piece of machinery which has become out of order and is to be set right. The physician, therefore, while he has much in common with the teacher, the clergyman, and the lawyer, has no less in common with the man of science and the engineer. As the one type is the professionalized retail salesman, so the other is the professionalized mechanic. The physician straddles between the two.

Throughout the entire history of human thought, scientific discovery and the art of medicine have hung together. More than half the great scientists of the Middle Ages were physicians. Huxley, Agassiz, and Virchow, among a host of lesser names, belong almost to our own time. More and more, also, as time goes on, the physician tends to become pathologist, chemist, bacteriologist, and sanititian.

The boys, therefore, who will make good doctors are much the same as those who will make scientific men

or engineers. They are the sort of persons who in youth make collections of all sorts, are clever at tools, like to tinker with clocks and run engines, and who, if they live near the railway, know each locomotive by its whistle. Every one knows the type, practical rather than bookish, sometimes more or less offish and unsocial.

By the time he reaches the high school, the boy who is to succeed in medicine should have done well at whatever has come to him in the way of drawing and shop work, and have a distinct bias toward the sciences. As we cannot imagine a successful lawyer who did not do well in his Latin and history, no more can we imagine a successful physician who did not do well in his chemistry. Chemistry is, in fact, of all high-school studies the most like the daily practice of medicine, and the best try-out of the doctor-to-be.

Like the lawyers, moreover, the doctors are distinctly

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The boy who tinkers with clocks and likes to run engines is the sort of boy who makes a good doctor, engineer, or scientific man

Brown Bros.

The doctor-to-be who does not do well in his high-school chemistry has slight chance of success in the medical profession

a picked body of especially able men, even in the professional group. The physician-to-be, therefore, though his strength lies in a different field, should fairly match his brother of the bar in class marks, and be able to pass easily any high-school subject. High general ability, then, in addition to the special quality, marks the medical mind.

The special quality seems largely to take the form of very uncommon powers of observation, together with an especially sharp visual memory. For it is a commonplace of modern psychology that there is no such thing as "the memory." Different persons do their remembering in quite different ways, and even with different parts of their brains. Apparently, our memory type is largely born in us; certainly, its native quality is not improved by education.

Some of us, when we stand up to recite, hear an inner voice telling us what to say. Such persons do most of

their best thinking in the auditory area, low down over the left ear. Those of us who cannot study without making our mouths go, think principally with a spot in Broca's convolution. Miss Helen Keller, who knows neither sound nor sight, probably does her thinking well up toward the top of her head in the part of the brain which manages the fingers.

But artists, draftsmen, artisans and mechanics, naturalists and other men of science in general, and all successful physicians, nurses, dentists, and other medical persons in particular, do most of their thinking and remembering in the so-called "visual area," about under the hatband between the side of the head and the back; and tend to remember everything by the way it appears. Such a visualizer learns a lesson by the appearance of the printed page, and when he comes to recite calls up so sharp a mental picture before his mind's eye that he simply reads off what he wishes to say.

The sharpness of some of these inner photographs is almost beyond belief by persons who do equally good thinking in other ways. Many a good visualizer, having memorized a page, can read the text backwards from his mental picture, or run his mind's eye down the margin and tell the first or the last word of each line. Paul Morphy used to play six games of chess at once, and win them all, without seeing any of the boards. An equally sharp "clinical picture" is the basis of all successful treatment of disease.

With this visual memory must go most uncommon powers of observation. The original "Sherlock Holmes" was an Edinburgh physician; and every practitioner of medicine has to "do the Sherlock Holmes act" during every hour of his working day. In other words, no small part of the doctor's business is to infer the patient's inner

condition by means of outward signs that are too small for other people to notice at all. Accuracy of inference is a good deal a matter of practice; but the basic power of observation seems to be largely a natural gift.

To those who have not this native gift, the powers of those who have it seem almost uncanny. I have seen a company get down on their knees and hunt four-leafed clovers until they were tired; and then have seen a child of Æsculapius walk once across the lawn, and occasionally stooping to pick a leaf, gather more than all the rest together. I once, by way of experiment, handed two half dollars to a group of young people, and asked them to tell me whether the two were exactly alike. All but one declared that the two coins were precisely identical in every respect. One boy, on the contrary, said at once, "The *D* under the bird's tail is slightly tilted in one coin, and the ends of the ribbon that holds the wreath are farther apart by about twice the thickness of a sheet of paper." Then they all looked again and agreed that he was right. That particular boy, it happens, hopes to study medicine. If he does, and fails in his profession, it will be for some other reason than that he lets symptoms get by him.

If then it is true, as Ruskin used to declare, that "there are ten men who can do to one who can think, and ten men who can think to one who can see," all but one per cent of the population is, on the face of it, cut off from the successful practice of medicine. But the visual imagination and the faculty of observation are not in the eyes but in the brain.

On the other hand, there are certain excellences essential to some other professions for which the medical man has, practically, so little use that many persons have won the highest success without them. Physicians, as

The Halliday Historic Photograph Co.

OLIVER WENDELL HOLMES

Though best known to the public as poet, novelist, essayist, and wit, Dr. Holmes was by training a physician, and was for many years teacher of human anatomy at the Harvard Medical School. He belonged to a professional family, all his special gifts occurring among his relatives, so that he is remarkable only for the unusual combination. This portrait brings out especially the qualities of the physician.

a whole, are notoriously poor public speakers. The visualizing type of mind apparently does not lend itself easily to oratory, or even, at times, to reasonably effective talk. Capacity for leadership, also, is so uncommon that few physicians have ever, in this country, had much popular influence or been elected to important public office. Characteristically, it has been the non-democratic states, like Germany, where medical men have done conspicuous public service.

Nor are physicians, as a whole, anything like so forceful or aggressive persons as are, let us say, lawyers, business men, engineers, or even the clergy. Neither, as a whole, are they especially social, tactful, "clubable." In fact, a shy, awkward, unsocial, one may fairly say bearlike type, has not infrequently gone to the very front rank of the medical group. No profession demands more absolutely the solid qualities of character, or dispenses more easily with the lighter ones.

Medicine, furthermore, is not only among the most exacting of all the professions in the native quality which it demands; in addition, it is of all professions the most severe in its ideals of training.

Johns Hopkins, which is on the whole the leading medical school of the country, begins by charging two hundred and forty dollars a year tuition besides fees; and then limits its classes to ninety students, taking only the best of all those who apply. It admits no persons except graduates of designated colleges and scientific schools, and even then insists on their having had thorough instruction in physics, chemistry, and biology, and proving their ability to read French and German. Only in the case of vacancies are a few exceptionally qualified persons taken over from other schools. Of all educational institutions in the entire world, this probably has the

straitest gate. Several other medical schools receive only graduates of approved colleges. Some others, equally good, concede something to students who stand near the top of their college classes and have had two years of pre-medical subjects, even if they have not graduated. Four years in a good high school, one or two years of specified subjects in college, and one hundred and fifty dollars a year tuition is about the lowest limit of an institution whose degree is worth having at any price.

The good schools drive their students hard for four years, frankly weeding out the incompetents who cannot stand the pace. The general practice is to carry through to graduation hardly more than half of those who enter. The other half is cut off from its ambition before ever it comes to its Senior year. In addition, from seventy to ninety per cent of medical graduates, after taking their diplomas, spend one or two years as hospital internes before beginning practice. There is a strong movement under way for the states to require this additional year before granting a license to practice. A few medical schools now demand a fifth year as research student or interne before giving even the medical degree.

In short, success in medicine presupposes, in addition to rare natural parts, a longer, a more rigorous, and a more expensive training than any other vocation. The issues of life and death are in the physician's hands. Whoso cannot fit himself adequately for his high office should seek a trade where he will be less dangerous to mankind.

Unfortunately, however, the public, speaking through its representatives, has tended to be much easier on the doctors than they are on themselves. Each of our forty-eight states has its own licensing board, and its own

standards. In more than half of these the law allows the board to refuse recognition to the graduates of the low-grade schools. All medical degrees look alike to the remainder; while one of our states, which shall be nameless, as late as 1912 licensed to prey upon the community no fewer than one hundred and seventy-five individuals who had not graduated from any medical school — yet, notwithstanding this, admission to the medical profession

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In the dispensary, Harlem Hospital. A year of actual practice as an interne is part of the rigorous training required by some of the best medical schools before granting a degree

is more carefully guarded by law than is entrance to any other human occupation.

Of late years there has been a determined effort to freeze out the ill-equipped institutions, an effort that has been so far successful that in the nine years following 1894 no fewer than fifty-six went to the wall, and the total number in the country dropped to one hundred and ten. Even this number, however, nearly equals that of all the

rest of the world together, and exceeds by twenty-two the number of medical schools in France, where the standard of medical education has long been thought to be the highest anywhere. At latest accounts, twenty-five institutions in sixteen different states are rated by the American Medical Association to be of the first grade, with thirty more that are on the whole adequate. With the ample opportunity offered by these fifty-five schools, to enter the medical profession ill-prepared is little short of murder.

The practical result of tolerating something like a hundred ill-equipped and often fraudulent diploma mills, all largely dependent on their fees, and all bidding for students no matter how ill-prepared, has been to overcrowd most scandalously the lower ranks of the profession. There is now in the United States one physician to each six hundred possible patients, as against one to two or three thousand of the population in Germany. Meanwhile, the high-grade schools alone are adding another two thousand physicians each year, until there are now some twenty thousand too many in this country.

The effect is the same as we have already seen it in the law. To quote a late report of the Carnegie Foundation on medical education in the United States and Canada: "In a town of two thousand people one will find, in most of our states, from five to eight physicians, where two well-trained men could do the work efficiently and make a competent livelihood," and alas, the physician, unlike the lawyer, cannot turn to business or fall back on politics for a living.

Worst of all, while the poorly equipped lawyer will perforce confine himself to unimportant cases that are within his range, and the clergyman of slender parts may minister usefully to a small parish, the ill-trained physician

meets the same fatal diseases as the most learned, while the life of the poor or ignorant man who employs him is worth just as much to himself as any other man's to him. Yet matters have actually come to such a pass that an Eskimo beyond the Arctic Circle, or a native in a breech-clout east of Suez, wherever the medical missionary sets up his improvised dispensary, may get more competent medical care than falls to the lot of thousands of persons in the United States. Even more than the law, and as a point of conscience as well as a matter of income, medicine is a profession for mediocre persons of slender opportunity to keep away from.

Medicine, however, unlike the other three ancient professions, is expanding rapidly. New branches keep budding out from the old trunk. Whole new departments, like tropical medicine and public sanitation, have developed within half a generation. Each year there are new uses discovered for sound medical knowledge. The state of Michigan, for example, has lately undertaken a crusade against tuberculosis which will involve the inspection of many thousands of persons, the teaching of thousands more, and the education of public opinion everywhere. Evidently, this work will take a somewhat different type of man from the old-fashioned practitioner of medicine. New York City maintains special research laboratories and still other diagnostic laboratories where the workers, though medically trained, are not practitioners at all, and are often men to whom bedside or office practice does not especially appeal. There is a vast and growing amount of patrol work in tenements and factories, in meat markets and bakeries and milk stations, of "carriers" of infectious disease and of foci of their spread, which is all strictly medical work, and all for the most part under control of medical men, and

yet which is not at all what the medical student of a generation ago looked forward to. All this takes well-trained men. The result is that with all the plethora at the bottom of the profession, there is no more than healthy competition toward the top.

On the other hand, medicine, especially in the cities, is the hardest of all professions in which to get a start. A young teacher or a young clergyman is more likely to be able to marry during his first year than is a young doctor to pay his office rent. One hundred dollars to the good out of the first twelve months' practice is by no means a discouraging beginning even for the best-trained man. Several who in the end have gone far have had to wait four and five years before they touched half the wages of the nurses under them. In fact, it is reported of a class three years out of a famous school, that when at a commencement reunion they indulged in a heart-to-heart talk over their professional incomes, it transpired that the man who led the class in earnings had abandoned medicine and gone to selling yeast cakes!

When, however, the graduates of the good schools do get under way, they commonly do nearly as well as the lawyers. In the larger cities, fifteen hundred dollars a year is reported as about the average for well-trained men under thirty. Good men, established in the country towns, run to two and three thousand dollars a year, while about one man in the hundred builds a city practice worth ten times as much as this. Medical professorships pay about the same as those in other institutions; but the medical man who teaches has a better chance than any other except the engineer to do highly paid expert work outside the classroom. Salaries in the various sorts of public-health service start for beginners below two

thousand dollars, and rise with experience to the neighborhood of four thousand. The medical missionaries sacrifice themselves for one thousand dollars a year.

Individual earnings in the medical profession, like those in the law, may be anything. Sixty thousand dollars a year is said to be the limit from a regular practice in this country; though abroad a medical income may pass the hundred thousand mark. Ten to twenty-five dollars an hour is the ordinary fee of a specialist. One famous consultant testified in court that his practice rose at times to six hundred dollars a day: single fees have gone as high as ten thousand dollars. Lorenz, the great Austrian orthopedist, is said to have taken home not much short of a hundred thousand dollars as the proceeds of a six weeks' tour in America. At any rate, he charged two thousand dollars for a short operation on a rich man's daughter, and then, doctor-like, did the same thing for nothing on the children of the poor, forty times over in one city. Also, he declined one of the largest fees ever offered to any professional man as contrary to professional etiquette.

One thing with another, therefore, medicine, although hopelessly overcrowded at the bottom with the ill-equipped, offers distinctly better paid work for the competent man than does either teaching or the ministry, while on its higher levels it stands not much below the law.

Like the law, medicine is now becoming highly specialized, and each special field offers its own peculiar attractions to a slightly different kind of man. Surgery, in particular, is now almost a separate profession, in which at least one man has become highly eminent by virtue of his extraordinary skill of hand who would hardly have passed mediocrity as a general practitioner.

Women do not often become surgeons. Medicine, on the other hand, attracts them somewhat strongly, so that at last accounts they numbered about ten per cent of the men, while their proportion is steadily growing. Many of these women become medical missionaries. The remainder commonly choose to limit their practice to their own sex and to children.

NURSING

Since the recent and phenomenal rise of nursing into a profession, a considerable majority of the women whose vocation is toward medicine have preferred the newer to the older side. Nursing is, indeed, the most feminized by far of all the professions, the women outnumbering the men nearly twenty to one.

The fact is, men rarely make good nurses. They have a limited field as attendants on men and among the dangerously insane, but otherwise the public vastly prefers women. For all this, there are some thousands of doctors of medicine in the country who would be distinctly better off in pocket and vastly more useful to their fellow men, if their time and effort had been spent in making them well-trained nurses instead of the sort of physicians they actually are.

The girl who is going into nursing does not differ appreciably in mental type from the boy who is going to practice medicine; so that all that has been said of the one applies in about equal degree to the other. She has, however, this very great advantage over the doctor, that she can give herself a more thorough and convincing try-out than is possible for any other profession, or indeed for almost any other vocation.

For after all, nursing is largely a sort of professionalized housekeeping. Making beds for sick people is a good

deal the same as making beds for well people. Cooking for invalids is still cooking. Caring for more or less helpless strangers is not especially different from tending

Brown Bros.

Cooking for sick persons is after all a good deal like cooking for well ones, and the nurse therefore finds that her work is largely housekeeping professionalized

one's own little brothers and sisters. Moreover, there are not many households where a girl cannot test herself on a case of actual illness. It is impossible to imagine even a fairly good nurse who would not also have made

Brown Bros.

The district nurse is called upon particularly to be a friend of the people. She must care for helpless strangers as well and as cheerfully as for her own little brothers and sisters

an extraordinarily good housemaid or cook, and who was not also a good daughter.

The first test of a nurse-to-be, therefore, is that she shall really like housework, shall take pride in it, and shall not mind the long hours, the loneliness, or the monotony that often go with it. The nurse-that-is will have to do like work, for much longer hours, and be a great deal more alone. The second test is that she shall really like caring for the sick or dependent, shall be a friend to old people, and a good elder sister.

After that comes, at the hands of other people, a rigid inquiry into character, health, and scholarship before a hospital will take the candidate. In addition to that is a probation period of from two to six months, which

weeds out from half to three quarters of even the picked body that has passed the earlier tests. Finally comes the try-out of twelve hours' work a day, seven days in the week, and fifty weeks in the year.

The result is that the selected group that finally wins through to its R.N. is virtually certain of success. Nurses sometimes ruin their health by overwork, but aside from this the graduates of the good schools are sure of all they care to do.

Like the other branch of the medical profession, nursing is becoming highly specialized. There are army nurses, Red Cross nurses, school nurses, district nurses, office nurses. Some nurses specialize on children, some on surgical cases. One thing with another, about every special sort of physician is matched by a special sort of nurse in the same field. Besides these, there are important executive positions, such as head nurses, hospital

Brown Bros.

Ward nurses at work. Until young women are settled in their characters they are useless in the hospital ward as well as unhappy under its rigorous discipline

superintendents, and the like. It is, therefore, no longer true that all nurses have to go without sleep or to endure any special hardships.

By way of preparation, the hospitals demand at least a high-school diploma and greatly prefer a college degree. Virtually no girls under twenty-one years of age are taken, for until young women are settled in their characters and well beyond the silly season of life, they are neither of any use "on the wards," nor likely to be happy under the rigorous and almost prison-like discipline of the hospital.

The training course consists of three years' work, with opportunity for graduate study. Some of the better schools exact a small fee; some, on the other hand, make a small payment for service. One and all, they demand the student's entire time without respite. Since, however, taking the course through, the labor of a nurse in training just about pays for her keep, the profession offers peculiar attractions to the girl with less money than brains.

Considering the quality of the women who take up the profession, nursing is rather underpaid. Twenty to twenty-five dollars a week and board is the usual wage for private work. But the labor is wearing and incessant, so that the "case nurse" must either take many vacations or break down. As a matter of fact, private nurses too commonly last only about ten years before they have to give up and try some other vocation. Salaried positions usually pay about a thousand dollars a year, though administrative work may bring in the region of fifteen hundred or occasionally two thousand dollars. Men are better paid for the lower grades of work, five dollars a day to the women's three, but they are practically cut off from all the higher levels

which are open to women, since here they meet the competition of the physicians.

On the other hand, of non-material rewards, the nurse can simply take her choice among those which belong

Brown Bros.

An ambulance aid post, "somewhere in France." The nurse with the adventurous spirit will find ample opportunities with the Red Cross in the field

to all the other professions together. Does she love children? There are the schools, the children's hospitals, and the new-born babies. Does she esteem the work of the ministry? She can take heathen land, or slum

district, or factory, or department store. She may build her life into an institution, or "hold the heartstrings of families in her hands." Does she want adventure? The medical missionary will take her anywhere he can go, and the Red Cross Society will send her anywhere else.

Beyond this, for nurse and doctor alike, comes that of which no outsider may rightly speak — the solemn oath of Æsculapius; the membership in "the only world-wide guild," older than the Christian Church, that knows no barrier of creed or race, and serves its members everywhere without price; the uniform that is passport to every gate; the personal love and trust that make nurse and doctor sometimes closer than kin. These are what the medical profession lives by.

DENTISTRY

The dentist is the medical man on a slightly smaller scale. Of somewhat less natural parts to begin with, he may enter even the best dental colleges with only a high-school education behind him, while the ordinary professional course is but three years. The cost in time, therefore, is about the same as for nursing, although the money cost is much greater.

Returns are distinctly high. Like the surgeon, the dentist is at the same time both a professional man and a mechanic, who sells the work of brains and hands together for a double price. Dentists, therefore, though they do not get the large single fees of great surgeons and consultants, fairly match the general practitioners in their earnings. A very few exceptional men are said to have touched fifty thousand dollars a year.

Apparently it is the large element of mechanics in dentistry, the need of combining the workingman's body with the professional man's brain, that has tended to

keep women out of the business. At last accounts, they numbered less than three per cent of the dentists in the country, notwithstanding that even twenty years ago there were already enough women dentists to form their own separate national association.

Nor is there anything in dentistry corresponding to the nurse in medicine. The dentist's assistant commonly ranks as an ordinary office worker, and is not, like the physician's office nurse, a member of her employer's profession.

Courtesy of U. S. Geological Survey

CLARENCE KING — Organizer and first Director of the United States Geological Survey

This eminent geologist and scientist worked during the expansion period of the nation when the sciences were at the lowest point of esteem and reward in this country; but he was content in the fascination of the work and through it won lasting repute.

CHAPTER XIII

The Scientific Group

THE traditional conflict between religion and science does not extend to money matters. There is no money in either. Most men of science, like most clergymen, are on salaries — and the salaries are about equally exiguous.

To the scientific man, moreover, are denied even those social rewards which fall to the members of the professions which deal with human beings. The scientist deals with things, with the powers of nature, with abstractions. Of necessity, he works alone; and for the subject of his labors the public does not commonly care a fig. In no civilized country on earth are scholars and men of science so little esteemed or so poorly rewarded as in the United States.

On the other hand, the man of science has an intellectual satisfaction such as comes to no other worker. He is by profession a "researcher." It is his business to find out something which nobody else knows; to prove, where other men have only guessed. He, more than all other men, is ever "forgetting those things which are behind and reaching forward unto those things which are before." For the little group of men and women who like this sort of thing, it is the most fascinating game in the world.

But, although our country has lagged sadly behind in the higher sorts of scientific achievement, we have been doing an enormous amount of good work on the middle levels. The United States government maintains bureaus of mines, plant industries, animal industries, fisheries, American ethnology, chemistry, forestry, soils, statistics,

Courtesy of U. S. Geological Survey

Surveyors at work for the United States Geological Survey among the almost inaccessible crags of the Rockies

entomology, standards, and weather. There is the National Astronomical Observatory, the Coast Survey, the Biological Survey, the United States Geological Survey, the Smithsonian Institution, and the National Museum. Porto Rico, Hawaii, and Alaska all have agricultural experiment stations. The Philippine Islands have a full-fledged Bureau of Science.

All these various bureaus and surveys employ an immense throng of chemists, bacteriologists, veterinarians, pharmacologists, geologists, physicists, botanists, entomologists, zoölogists, topographers, astronomers, geodesists, foresters, statisticians, and the rest. Their work varies from inspecting labels under the pure-food law to reporting on the coal deposits in Alaska or exploring Central Asia for useful plants.

Most of this is highly specialized expert work, based on at least four years of training beyond the high school. Places are virtually all controlled by the Civil Service Commission, and are entered only by competitive examination. Salaries run in general from twelve hundred to two thousand dollars or more; a few reach four and five thousand.

This field is expanding rapidly as the government takes on more and more functions which heretofore have been left to private initiative or have gone unperformed. In any part of it, a well-equipped man of scientific tastes is sure of some sort of living, a fixed tenure, and not too much to do. The drawbacks are those which inhere in all government employments—low pay for good work, promotion by other factors than merit, the deadening effect of the great, stupid, tape-bound machine. The best men, after they obtain their experience, are apt to leave the government service and take up private work.

Much scientific work like that of the general government is done also, though on a smaller scale, by the several states. Many of these have their own scientific staffs. Nearly all maintain at least one agricultural experiment station. The last vary locally. Some are doing admirable scientific work; but in too many the call is still for immediate practical results, "less about karyokinesis and more about hay."

The statement of a few facts will indicate the scale on which this sort of work is done. The combined annual budget of sixty-four experiment stations is now more than three millions a year. The California station alone has five thousand acres of ground and a million dollars' worth of buildings.

The Department of Agriculture spends five hundred thousand dollars a year on its printing alone. The Bureau

"The Guide to Nature"

A small private laboratory and its owner, a consulting chemist

of Fisheries devoted forty thousand dollars to a single study. It cost the Geological Survey into six figures to look into the mineral resources of Alaska. The Bureau of Mines spends well above half a million dollars a year, and the Bureau of Standards nearly three quarters of a million. This shows the scale on which our Uncle Samuel operates, and the wide field there is for his scientific nephews and nieces.

A few more facts taken from a single field will show the

scale on which this sort of work will have to be done in the immediate future. It was shortly after 1850 that the great Pasteur did his famous work on the grape mildew which, introduced into Europe from America, was cutting down the grape crop of France to a twentieth of the normal yield. As a result, Pasteur not only saved his country incalculable millions, but what has proved more important, laid the foundation of the science of plant pathology.

Yet for all of that, a single rather local disease of the grape has cost the growers of California a loss into the millions; while the pear blight alone has at times mulcted the same state at the rate of a million dollars a year. The potato blight cost the farmers of New York ten millions in 1903. The wheat rusts have hit the country to the tune of fifty millions in a single year. Six hundred millions annually has been calculated to be the total loss to the country from preventable diseases of cultivated plants alone.

Preventable, that is to say, after some American Pasteur finds out how to prevent them, or some American Biffin breeds an immune stock. But with the present zeal for conservation, it can hardly be many years before there will be a considerable expansion in the demand for workers in this department of botany. And this is only one corner of the possible field for scientific work; while for every man of science who makes a great discovery, a hundred lesser men will be needed to apply it in detail.

By way of further illustration of this expanding field, consider on the side of animal disease the recent gift of a million dollars for research, the half million which Congress appropriates to fight hog cholera alone. Consider the seventy-five million dollars a year which in this era of high prices and dear food the country loses by this same hog cholera; the eighty-five million dollars' worth of cattle

ERNEST THOMPSON SETON "The Guide to Nature"

Mr. Seton, one of the founders of the Boy Scouts and the author of many delightful animal tales, is by profession a naturalist on the Canada Biological Survey. The picture shows him studying the ways of the skunk.

which die of disease; the ten million lost on sheep; the nearly nine million lost in poultry. Two hundred and thirteen million dollars every year is the estimate of the Department of Agriculture of our loss from animal diseases. One thing with another, a thousand million dollars a year are at stake; and ample work and wages for all the scientific persons who can mend the ill.

Of the universities, the Carnegie Institution, the Rockefeller Institute for Medical Research, and the like, there is little need to speak. These, like their prototypes in other lands, offer some of the highest prizes of a scientific career, but without a corresponding wage.

Nominally, to be sure, the universities pay their professors for teaching and these men do their scientific work as an avocation. In reality, much of the teaching is nominal, the scientific work is the important matter, and the pupils are really assistants. Much scientific work, moreover, both in and out of the universities, is helped out by the grants of the Carnegie Institution, Luther Burbank alone getting ten thousand dollars a year from this source.

The interesting field just now, however, is the industrial. Twenty-five years ago there was virtually no industrial science in America. The country was still new; land could be had for the asking. Nobody thought it worth while to save by stopping little leaks. Industries were universally in the hands of ignorant, rule-of-thumb foremen, and fixed in an eternal state by immemorial tradition.

Typical of these good old days are the large-scale planter who imported lime by the shipload for his fields, while all the time a great limestone cliff stood opposite his front door; or the glass maker who wasted seventy-five dollars' worth of niter every day because at another

time, years before, a long-departed foreman had needed it for a particular lot of sand. Even so late as the American Mining Congress of 1916, there transpired the case of an iron mine that had been running at a reasonable profit for seventy years, unscientifically. Then the management hired a young superintendent who had studied chemistry. He promptly discovered that his mine contained zinc in such quantity that ever since the mine had been opened, the zinc thrown away had been worth more than the iron that had been saved. Now the enterprise is operating as a zinc mine with iron as a by-product. The famous mines of Leadville have had a like history. Wherever we turn, we find that American industry has flourished because of cheap raw material and fuel, the insatiate demands of a growing population, and an office management that partly offset the inefficiency of the shops.

To-day, however, the country is full; and we begin to feel the pressure of population somewhat as it has long been felt in Europe. Meanwhile, the Germans, by putting their university graduates into the shops, have made several of their industries so efficient that they have virtually ousted all other nations from several profitable markets, and got a full generation the start over the rest of Christendom.

We in this country are just beginning to wake up to the possibilities of "catalyzing raw material by brains." Andrew Carnegie was about the first American to try the experiment on a large scale, by applying chemistry to the steel industry. And it brought him, first and last, a pretty penny, although several different investigations were at a cost well beyond the hundred thousand dollar mark.

Other large companies have followed the example of

Hartsook

LUTHER BURBANK — Breeder of plants

Mr. Burbank receives ten thousand dollars a year from the Carnegie Institution, but this is little compared with the enormous benefit the country derives from his work. The picture brings out well the hands, which are typically those of the skillful manipulator and essential to success in any of the biological sciences, including medicine.

the United States Steel Corporation and the German firms. The Du Pont Company, which for more than a hundred years has been making gunpowder and high explosives, now has three sets of laboratories in which are employed two hundred and fifty professional chemists. The Eastman Kodak Company, the General Electric Company, the American Telephone Company, and at least fifty other large companies maintain scientific staffs and spend, in several instances, as much as three hundred thousand dollars a year on scientific research.

In most of these large and well-organized corporations, the superintendents of the departments in the plant make periodic reports to the research department of all promising ideas of their own or of any of their assistants. In the same way, the salesmen report regularly all criticism of the output which they have encountered, all unexpected uses to which the products are being put, and all information as to rival goods and substitutes. The scientific staff then attempts to work out these suggestions. So far as they succeed, the company that employs them makes one more step in advance of its competitors.

Scientific work, well organized, is enormously profitable to the manufacturer. The Du Pont Company reckons a profit of a million dollars a year from its high-explosives' laboratories alone. Carborundum and acetylene are recent laboratory discoveries. Aluminum used to bring twelve dollars a pound; now it costs less than thirty cents, with an annual output of forty million pounds. When the chemical problem of handling sulphur-bearing oils was finally solved by Frasch, the price of Ohio oil jumped from fourteen cents a barrel to one dollar, on an output of ninety thousand barrels a day.

Within a few years, a certain large baking company

set a young scientist at work in a little laboratory in Pittsburgh to answer a certain question concerning bread making. They paid him seven hundred and fifty dollars a year, and offered an additional prize of two thousand dollars if he found the answer—as he did. This suggested additional questions, and a year or two later there were three men at work in the same laboratory at two thousand dollars a year each, and a bonus of ten thousand dollars

Brown Bros.

An industrial laboratory. A room in the experimental department of the Western Electric Company

on the horizon. The bakers concerned reckon that they are already furnishing better bread than their competitors and saving two hundred and fifty thousand dollars a year on their former costs.

The outcome was the now famous Mellon Institute. It began in a small way, but within a year or two there were, among other young men of science, no fewer than nine chemists studying petroleum alone, each on a living

wage, with a ten per cent royalty on the value of their findings. Smaller companies, starting new and lacking some essential for their process, have offered a quarter of their stock as bonus for the discovery. To-day, the Institute is a department of the University of Pittsburgh, well endowed, well equipped, and growing so rapidly that no account of its condition will remain adequate while a book is going through the press. Thus the field for scientific work continues to grow.

Meanwhile, the relations between the universities and the great industrial plants are every year becoming closer and more cordial. The Massachusetts Institute of Technology, to take an example almost at random, will hereafter place its best students, for a portion of their course, in the factories and shops of a half dozen important industries of New England and elsewhere, where they will, on the one hand, become familiar with the practical side of the subjects which they pursue, and on the other, it is hoped, help the scientific progress of the business enterprises. Indeed, at least one firm goes so far as to pay the student's expenses. Or to cite a single case only of a different type, the National Canners' Association has arranged with Harvard University to pay twenty thousand dollars a year for three years, in return for a thorough study of the subject of poisoning from canned goods.

These straws show which way the wind is on the point of blowing. Even now it has become difficult to find enough men to carry on this sort of investigation. In the near future, as the tendency develops, as it must, the demand will be still greater. The work is directly wealth-producing; therefore it will be well paid.

The general outlook for some half-dozen sciences is well summed up in the words of a president of the American

Chemical Society concerning the science which is just now in the lead:

"We need a multiplication of research laboratories in special industries, each with an adequate staff of the best men obtainable, and an equipment which gives full range to their abilities. Modern progress can no longer depend upon accidental discoveries. Each advance in industrial science must be studied, organized, and fought like a military campaign.

"Or to change the figure, in the early days of science, chemists patrolled the shores of the great ocean of the unknown, and seizing upon such fragments of truth as drifted within their reach, turned them to the enrichment of the intellectual and material life of the community. Later, they ventured timidly to launch the frail and often leaky canoe of hypothesis, and returned with richer treasure. To-day, confident and resourceful as the result of many argosies, organized, equipped, they sail boldly on a charted sea in stanch ships with tiering canvas, bound for new El Dorados."

And captains and crews will be men and women of scientific tastes who have discerned the signs of the times.

Just what these men and women will be like during their high-school course, it is by no means easy to say. Obviously, their tastes will be "scientific," at least to the extent that they will like their school sciences and do reasonably good work at them. And yet the ordinary school course in, let us say, biology or physiography is only in the remotest way a test of either scientific interest or aptitude. Still less is the hodge-podge of miscellaneous information, much of it worthless, which it is now the fashion to teach under the name of "general science." One can imagine a youth of real scientific ability who should fail to respond at all to this

imitation science; while on the other hand, the prize pupil of the class in several of these subjects, as they are too often taught, may have no real scientific ability at all. In fact, ability in algebra and geometry, even in Latin and Greek, is quite as sure a test of the embryo man of science as are several of the so-called "sciences." A zeal for "wireless," however burning, is no criterion at all.

On the other hand, a course in physics or in chemistry that fits for the examinations of a high-grade college is probably a real test. No one who cannot handle either subject readily, and his mathematics as well, has the scientific mind, even though his present interest and his future work may lie in a different field of science. To handle both subjects uncommonly well is an encouraging sign for either a scientific or an engineering career.

Beyond this, it is pretty clear that the scientific type of boy or girl is hardly distinguishable in youth from the medical type which we have already discussed. Both tend to be, on the whole, reserved and silent rather than the opposite, thoughtful rather than glib, not as a whole especially sociable, and likely to be interested in machines and collections.

On the whole, probably the most characteristic quality of the scientific man is originality. All great investigators have been men of most uncommon independence of mind, and the quality seems nearly always to have shown young. Ingenuity, especially, is one of the forms that originality takes in youth, and it may also appear as certain forms of waywardness. Various eminent students of nature have given their parents and teachers a good deal of quite unnecessary anxiety.

One thing with another, then, we have a fairly sharp "clinical picture" of the physician-scientist-engineer sort

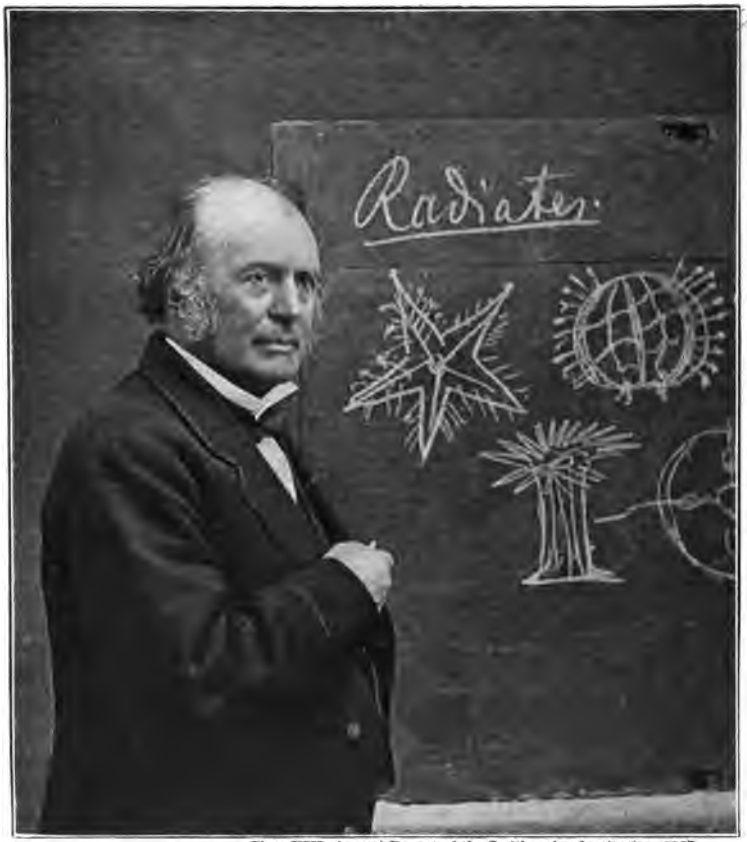


Plate VIII, Annual Report of the Smithsonian Institution, 1907

Louis Agassiz

"The elder Agassiz" was equally eminent as a man of science and as a teacher, but was quite without business ability. He married the sister of an eminent botanist, who was also an excellent housekeeper. Their son, Alexander, "the younger Agassiz," inherited scientific ability from both parents and became even more eminent than his father, but he missed completely his father's teaching ability. On the other hand, he took his mother's business capacity, and became also a great mining engineer. Later generations have married into business families, and have for the most part lost their scientific eminence. The entire family, however, still retains the uncommon muscular strength and activity which characterized the elder Agassiz, and which appears even in this portrait.

of boy. But to differentiate the three, and to say which of the branches of the main trunk any youth should climb, is for the present quite beyond the power of the vocational guide.

The range of quality which finds its place in some corner of the scientific field is every year becoming wider. The old-time men of science, in order to succeed in their chosen work, had either, like Darwin and Lavoisier, to have independent means; or like Priestley and Lubbock, they have had to follow some other occupation for a living and do their scientific work as an avocation; or else, like the great majority of scientific men up to within a few years, they have had to resort to teaching.

Now it so happens that the kind of ability that makes a good teacher, and the kind of ability that makes a man of science, do not commonly go together. In fact, just this natural incompatibility of the two is one of the reasons why the introduction of natural science into the modern school has proved in practice to be so great a disappointment to its advocates. Huxleys and Agassiz' are rare. Practically, the man or woman of real scientific talents does not ordinarily teach really well. One has only to read the educational journals to see that the more prominent teachers of natural science are very far from being in any sense scientific men.

It has been in the past, to some extent it still is, a question for each prospective man of science to decide, whether he has enough liking for teaching and enough talent to make it worth his while to combine the two. That time, fortunately, has gone by. There are plenty of positions open to persons who will not teach to take care of most of those who cannot, though it may take hunting to find them.

Nevertheless, this problem confronts every youth who is considering a scientific career: Shall he take it "straight," or shall he fit himself for a teaching position and carry the two vocations along together? Let him not deceive himself into thinking that he may simply go ahead with his scientific studies, and then if the laboratory does not take him, the desk will. The two fields take a different sort of person. The training for the two ought to be correspondingly different.

The range of ability which brings a useful and happy life in the field of natural science is much greater than that in any of the professions which thus far have been discussed. The foremost men of science, persons like Newton and Franklin, have been among the ablest men of their day. Franklin is commonly counted among the two or three greatest Americans. Newton ranks among the two or three greatest men of the world.

On their upper levels, therefore, the men of science in any community are the equals of the lawyers and physicians. On the lower levels, on the other hand, a vast amount of useful routine work is now being done by men whose native mental equipment ranks with the unsuccessful lawyer or the average preacher. One may turn off analyses of gas or water most acceptably, and yet fall far short of the quality of brain that makes him equal to being trusted with human lives. Pure science, like its applications to engineering and agriculture, offers so wide a field and on so many levels, that no adequately trained person need fail to find a place somewhere.

By permission from Thomas A. Edison. Photo from H. J. Brady

THOMAS A. EDISON

Mr. Edison may be ranked equally high as an inventor, an engineer, a technologist, a chemist, or as a "researcher" in pure science. In broad terms he is a scientist with a mind set for the practical application of his science to the problems of the day.

CHAPTER XIV

Engineering and Invention

AS A matter of logic, the line between science on the one side and engineering on the other is distinct enough. The scientific man deals with the facts and laws of nature; his ultimate product is something that can be stated in words. But the engineer deals with "engines," in the original sense. His ultimate product is something made of steel or brass or masonry. The inventor differs from the engineer only in that his "gin" is more original, more uniquely his own, less a repetition of what other men have already made.

As a matter of practice, however, the line is by no means so clear. Most of the so-called scientific schools of the country are schools of engineering or technology. Pure science, applied science, technology, engineering, and invention tend more and more to become mere regions in a continuous series like that which carries the size of objects from small, through undersized and middling, up to large. Most technicists of to-day build on a foundation of pure science. Some of the best scientific work of the time has been with an eye to its technical or engineering results, as witness the coal-tar dyes and the chemical study of metallic alloys.

We reckon Lord Kelvin as the dean of nineteenth-century science; yet it was his invention of a telegraph recorder that made possible the submarine cable. We count George Westinghouse an engineer; but he took out three hundred patents of his own. The younger Agassiz deliberately made a great fortune as a miner

for the sake of spending it in the pursuit of pure science. Edison is commonly reckoned an inventor, and yet how much of his work has been engineering or technology! There simply is no line to be drawn between the vocations of this group in any such fashion as, let us say, between the ministry and the law, or between the painter and the musician.

Our "clinical picture" is, therefore, in outline this: Given the fundamental scientific type of mind, the thing-mindedness coupled with high ability, the addition of uncommon powers of observation makes a devotee of one of the natural-history sciences. The same man, plus the moral characteristics that make a clergyman or teacher, listens to a call to medicine. A twist toward theorizing and abstractions makes the "researcher" in pure science. A constructive imagination added to the scientific bent may produce an inventor. The inventor with business sagacity and sound judgment becomes the engineer. The engineer who is also an artist is an architect.

In other words, we have here a somewhat well-marked type of human being, which on its lower levels is the mechanic, and on its higher, branches out into a dozen different vocations which at first sight have little enough in common.

Oddly enough, engineering and the ministry seem to be the only professions in which there is any sign of a distinct physical type. All professional men, to be sure, tend to be of more than average size and vigor of body, for the reason that as a whole they are taken from the better endowed classes of their communities. The clergy, in addition, since voice and "presence" count so much toward their success, are, as we have seen, rather more than average specimens even of this favored class.

Metropolitan Park Commission, Boston

A vacuum cleaner sand dredge. The inventor of this dredge is engineer in that he has built an "engine"; but he is an inventor because there is something new and original about the "engine'

The engineers also are a picked group physically. Moreover, like the clergy they include rather more than their share of athletes. In fact, one prominent engineer has argued that a boy's talent for the vocation is in no small degree tested by his success at football.

The reasons for this seem to be two. In the first place, for most branches of engineering the beginner, at least, has to go into all sorts of wild places and to endure a good deal of hardship while he is getting his start in the profession. Some men, miners for example, or geologists, may have to do this during all their working lives. Hardiness, love of adventure, a liking for the rougher sports, are some of the promising signs of the coming engineer.

Besides this, there is the fact that most engineers have to handle men. Moreover, their employees are very

largely a rougher sort than those in most occupations. In this, the big man, the athlete, has a great advantage over other types. For both these reasons the undersized, unathletic boy may well consider whether pure science rather than engineering is not his proper field. But, of course, there are exceptions. The manager of a city gas plant need not be different from any business man.

Because the engineer commonly has to handle men, he needs also the mysterious quality which we have called capacity for leadership. Without this capacity he can hardly go very far in his profession. If, therefore, one does not show this during school days, it is reasonably clear that his call is rather toward pure science or medicine.

Equally with the devotee of pure science, the engineer is characterized by originality of mind. He differs from the scientific man in the greater development of his powers of judgment.

In other words, the engineer is, in mental type, somewhat midway between the physician and the man of science on the one hand, and the business man on the other. Briefly, the engineer is the all-round person who might have done well either at business or at research; while the scientific man has the more specialized talent and might not succeed at all in a business venture. A liking for business is, then, one of the tests of a budding engineer.

In these qualities of the engineer, his business ability and his power of leadership, lies one of the attractions of the profession. The engineer is an all-round man by nature. His training tends still further to develop this native "wholesomeness." The result is that a well-equipped engineer can turn his hand to more different occupations than, one may fairly say, any other professional man.

Metropolitan Park Commission, Boston

The Harvard University Stadium. The engineer who is also an artist builds "engines," or bridges, or houses, or concrete bleachers, but he does so with an eye for beauty

Especially noteworthy is the close relation between engineering, invention, and business. The result is that for certain sorts of business, and these among the most important, an engineering training is among the best of preparations. Conversely, the engineer who does not quite make a success of his profession can easily try again as a business man.

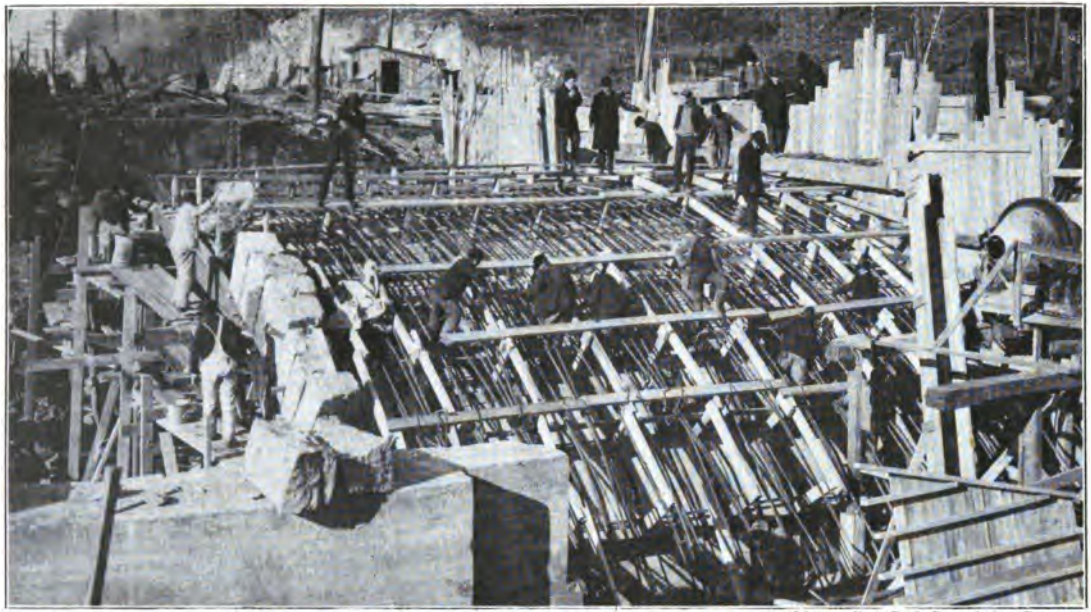
For all these reasons, a young man may venture on the training for an engineer with less proof of his special talent than in the case, probably, of any other of the professional careers. Brains, of course, he must prove himself to possess. But beyond this, he may safely embark on the course that leads to engineering with less proof of any special gifts than are demanded for most other vocations. Preëminently, given a youth of at all the right sort, engineering is likely to be a good risk.

Taken in this wide sense, the engineering group offers an inviting field for a great variety of special aptitude. Anciently, it split only into military engineering and civil. The men of two or three generations ago, like Stephenson or Smeaton, took it all in the day's work to build a lighthouse, design a steam engine, lay out a carriage road, figure a bridge, and wind up with a plan for harbor improvement. Most of them, on a pinch, could have built forts or designed men-of-war.

To-day, a good engineering school runs four-year courses in a dozen different branches that are almost as distinct as so many different professions. Almost as early in life as a youth needs to decide whether he will become an engineer at all, he must begin to make up his mind among the old "civil" group, machines, electricity, steam, water-power, chemistry, mines, sanitation, illumination, factories.

In actual work, the specializing goes much farther. Some men stick to marine engines, some to pumping engines, some to locomotives. Some construction engineers do nothing but railways; some confine themselves to highways; some do nothing but dams; some devote themselves to bridges. There are mill engineers, and sewage experts, and men who are authority on water supply. A little difference of initial interest will land a boy, a year out of his technical school, in the office of a city gas plant, or hang him on a rope over a cliff in the high Andes.

Moreover, the field for well-equipped engineers is expanding more rapidly than any other branch of the professions. The American Society of Agricultural Engineers is just ten years old. The American Genetic Association, whose members are essentially biological engineers, is not yet five years old. The whole



Metropolitan Park Commission, Boston

Bridges are among the most ancient structures built by man, but to-day bridge building is a new and highly developed branch of construction engineering and requires special artistic as well as scientific skill

electrical group has come into existence within the memory of persons hardly middle aged. The very men who to-day are the leading experts on water supply and the disposal of sewage, were laboratory assistants in the first systematic, large-scale experiments in eliminating typhoid. Gas engines, automobiles, aëroplanes have made new branches of the profession that are younger than most persons who read this book. Who can tell what may happen next year?

In fact, there is, just at this very time, a whole new vocation of the scientific group, springing up under our very eyes. It has as yet no settled name. It lies midway between medicine and sanitary engineering, and yet is not either one. Its practitioners are really superintendents of public health, persons who are responsible for the health of a community much as a general practitioner is responsible for that of a single family. They are not physicians, because they do not treat disease. They are not engineers, because they do not build structures. Actually, most of them, thus far, have been trained as physicians. But this is clearly not the best training. A few schools only are now giving special courses that look forward to the new vocation. But the development of the profession is still to come. This is but a sample of the expansions which lie before the scientific occupations.

In addition to this, the scale on which engineering works, even of the old sorts, are now being carried forward is something of which men did not dream a generation ago. The Egyptians irrigated their fields before the beginnings of history. But they waited till our own day to build the Assuan dam; and even now the Egyptian government is planning to spend another fifty millions or so on further like projects. Ancient travelers to

Cathay marveled at the canals of that far country. China is now planning to put twenty million dollars into another.

One need not dwell on the Panama Canal and our own government reclamation projects. Private capital put a score of millions into the Keokuk dam across the Mississippi. A railway borrows ten millions at a time from a thousand different persons. It has been calculated that the country's electrical industries alone, during the next five years, will absorb new capital at the rate of eight million dollars a week.

By far the greater part of these enormous sums will be spent under the direction of engineers. And since this is all intended to be productive capital, yielding its profit to its owners and its service to mankind, it is clear that on the efficiency of the general body of engineers, more than on any other single group of men, hangs the material prosperity of the nation. Sir William Ramsay has even gone so far as to opine that during the next generation chemical engineers alone are going to determine the relative standing of the great peoples of the world.

Naturally, the public does not muzzle the ox that treads out the highly valuable corn. The Panama engineers saved twenty cents a cubic yard on the estimated cost of taking out a hundred million yards. The man who planned and built the Lucin Cut-off, which carries the Union Pacific Railway across Great Salt Lake, saved his employers sixty thousand dollars on the first year's traffic. Persons who can do this sort of thing are scarce, and cheap at any price,—and they get it. As a result, the great engineers rival the great lawyers in the size of their money prizes.

For men in private practice, professional earnings are so mixed in with business profits that nobody can really

Metropolitan Park Commission, Boston

The park system of a modern city includes lake and seaside resorts, fields, forests, roads, bridges, buildings, transportation systems, athletic fields, and even theaters. Its planning and maintenance require a corps of specialized engineers

tell where either leaves off. Westinghouse, who started poor, must at times have paid himself nearly a million dollars a year. McCormick must have done nearly as well with his farm machinery. In fact, when one comes to think of it, most of the great American fortunes of late years have had about them a considerable flavor of engineering.

As to professional fees pure and simple, it is a familiar story that the man who really broke the back of the Panama project, resigned a regal income from the government because he could not afford to sacrifice the still larger earnings of his private practice. The Chief Engineer of Public Works in New York, with a salary of twenty thousand dollars a year, is said to be the highest paid public official in the state. In general, if the lawyers beat the engineers in the summation of their fees for piece work, the engineers probably outdo all the other

professional men in the day's wages they exact as one employer bids against another.

Unfortunately, "the cream rises thin at the top," so that the great engineers of the world are a small group of extraordinary men, who have something of a monopoly of the large-scale undertakings. But the unique thing about engineering is the combination within its ranks of great prizes for great men and a comfortable living for lesser men. A profession whose larger rewards rival those of business and the law shades off at the bottom into useful vocations at ordinary day's wages.

In other words, the same enormous range of ability which we have already seen to be characteristic of pure science appears also in the closely related field of applied science. In each, there are great men and small, all useful, and all doing interesting work. The obvious difference is that while the great engineer is paid greatly

Metropolitan Park Commission, Boston

Road making. The cub engineer often literally "takes to the road"

in money, the great discoverer commonly has to take his reward in fame.

Most of the great corporations which, as we have already seen, maintain scientific staffs, have also staffs of inventors and engineers, to whom they pay from ten or twelve thousand dollars a year down to one or two thousand. The railways that pay their chief engineers in five figures put their cub engineers to running levels at a wage hardly greater than that on which a country clergyman is expected to bring up a family. All over this country are young men and old, in charge of gas plants and electric-lighting stations, engineers of highways and water supply in small towns, assistants of all sorts in large ones.

Some of these are capable persons who will go far; some have already found their levels; most of them are on small salaries. But one and all, they are experts, trained for their special work and not lightly to be spared from it; and each knows himself to be important for the comfort or welfare of some community.

"There are men," says Arnold Bennett, "who are capable of loving a machine more deeply than they can love a woman"; and there are men who like to feel that because of their labor the earth for centuries to come will be kinder to its children, or will cast a different shadow on the moon. Both these sorts go into engineering; and "they are among the happiest men on earth." What other profession offers such varied rewards to so many different kinds and grades of men?

CHAPTER XV

AGRICULTURE

FARMING, so far as it is a profession, belongs obviously with the engineering group. The farmer's engine is his farm — a vastly complicated piece of machinery in which cows and hens, farm tools, soils, weather, bacteria, and fertilizers work together like levers and cog wheels to turn out the final product for which the farm exists.

More particularly, agriculture is one of the chemical industries. Its problem is to convert the simple materials of earth and air into fibers or animals or human food in essentially the same way that, for example, another chemical industry converts coal tar into the aniline dyes, and still a third alters ordinary cotton into the high explosive. The farmer, in other words, labors to alter the properties of bodies rather than, like the civil or mechanical engineer, to change their places in space.

Moreover, the successful modern farmer tends more and more to become of the same mental type as other members of the engineering group. He has need of the same combination—by no means frequent—of practical sense, scientific insight, and business sagacity. Finally, nowadays, he is getting very much the same sort of education.

One might, then, conveniently lump in agriculture with the rest of the engineering group. What has already been said of the others applies equally well to that one whose special "gin" is the land. Whatever more might be said of engineering in general would be equally true of modern scientific farming.

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Cadwallader Orchard; on the Rio Grande project, New Mexico. Waste spaces are useless cogs in the agricultural engine and the modern scientific farmer eliminates them

Nevertheless, there are certain aspects of agriculture in which it stands somewhat apart from the remainder of the engineering group. Unlike the others, which are all new vocations, agriculture is the oldest industry of settled human society, the earliest applied science. It is, in a very real sense, the great original trunk from which all the specialized modern forms of engineering have budded off. Just as in primitive society the "medicine man" is clergyman, teacher, lawyer, and physician, all in one, so also the primitive farmer is the road-maker, the bridge builder, the digger of canals, the constructor of waterworks, the inventor of tools; in short, the engineer. In much the same fashion that the traditionally "learned" professions are historically but specializations of ancient priestcraft, the new "practical" professions are specializations of primitive agriculture.

Now we have already noted that the clergyman, as the original professional man in human society, still retains something of the all-round character of his prototype. He is still something of teacher, physician, lawyer, and business man, the least differentiated worker of his group. For much the same reason, the farmer also remains the most all-round man among engineers. He is more different kinds of person than even the parson. He is the only member of the community who is at the same time laborer and capitalist, trader and manufacturer, artisan and overseer, student and man of affairs. He is the only sort of person who works at the same time head, hands, capital, business experience, and professional training.

Furthermore, the well-equipped modern farmer has to know something of more different branches of science than does any other professional or business man. It is no mere jest that he is nowadays assumed to be familiar with the botanical name of what he raises, and the entomological name of the bug that eats the crop, and the pharmaceutical name of the chemical that kills the bug. Botany, zoölogy, geology, three or four members of the chemical group, as many subdivisions of animal and plant physiology — what modern science is there that the farmer does not touch on the practical side? In addition, he is a student of markets and a business man.

Agriculture is, therefore, the special vocation of the all-round man. We have already noted that there are two types of attention. Some thoroughly efficient persons can think hard on only one subject at a time; others, equally efficient, are able to hold several in mind at once. We have also noted that certain professions, for example teaching, are possible only for minds of the second type.

In the same way, there are persons whose work-interest can be narrowed down to one channel. They are content

to go on, half a lifetime through, manufacturing boot heels, operating for appendicitis, writing detective stories. Many an eminent man has found his highest joy in knowing all there is to be known about one small field of human interest. On the other hand, there are other men who do their best work by the shotgun method. They have a diffused interest. They enjoy making many different sorts of knowledge pull together.

The typical farmer is preëminently of the latter type. In common with all journalists and some lawyers, he has the sort of mind that can switch from the market quotations on apples to the latest theory of soil fertility; from the pasturage of his cows to the newest invention in labor-saving machinery.

Finally, in common with teacher and pastor, the successful farmer must have certain non-intellectual qualities for which other professional men more commonly have no need. As both pastor and teacher must instinctively love people and be interested in them, so must the farmer instinctively love nature. Those there are to whom the winter wind is merely cold, the summer sun merely hot, and the fresh-turned soil just dirt. They are simply born that way, and they have no business on a farm. But for the other sort, for those more happily endowed individuals who really love the out-of-doors, there are again "those inward and incommunicable joys" which teachers, ministers, artists, nurses, and farmers seem to attain, more than all other earners of pay.

Finally, the contented and successful farmer will not be especially gregarious. There are persons in whom the social instincts are so strong that they are never happy out of a crowd, and to whom a moment's solitude is an utter horror. They, again, are born that way; so, too, are cattle

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A boy who loves outdoor life. The boy whose call is to agriculture has an instinctive love for all the out-of-doors and needs no companionship but that of nature to make him happy

and sheep and English sparrows. Other men are like cats and foxes, who walk by themselves. Of necessity, no matter how much the future shall multiply telephones and motor cars, the farmer and his family will have to be a good deal alone. Gregariousness, special sociability, dependence on other persons, essential slavishness of mind, belong on the pavements, not in the open fields.

Our "clinical picture" of the youth whose call is to agriculture is, therefore, this: He will be very much an all-round person, of practical, scientific bent, of a wide range of interests, and of distinct business capacity. He is, intellectually, the sort of person who would do reasonably well if he followed a pure science, a specialized branch of engineering, or plain business. In addition, he will instinctively love animals and plants and all outdoors; while he will not love inordinately other human beings or

be especially dependent on companionship. Independence and versatility, in short, are his special qualities.

There is, however, yet another unique advantage which farming offers beyond all other vocations on the same mental level, namely, the conditions of its training. Other professional men, for the most part, have to take their formal education in a lump, at the professional school. For the rest of their lives they have to study by themselves. But the farmer is the one of the few laborers who can plan in advance for definite periods of light work. No matter what his crops may be, there is always some time in the year when they do not need all his attention. Where other men have vacations, the farmer has periodic leisure.

Training for agriculture in the United States is built around this fact. One can always do the conventional thing; and take his formal education in a lump. But on the other hand, any ambitious young man, employed at farm work below the professional level, may take advantage of innumerable excellent short-term courses, and go as far as he will. No other worker, except possibly the teacher, has any such educational opportunity.

Against all these varied advantages of successful agriculture must be offset the fact that farming pursued alone virtually never makes any man rich. Few workers, probably, are more generally certain of reasonable comfort, none perhaps are more generally happy in their work; but, like teaching and the ministry, the rewards of agriculture come in other forms than wealth.

One special satisfaction the farmer has universally, which only in rare cases comes to any other breadwinner —he shares his labors with the members of his family. There is no other vocation, not even the ministry, where husband and wife are so truly yoke-fellows, or where the family as a whole works so unitedly toward the common

end. Of all the permanent satisfactions of human existence few contribute more to a happy life than this.

All that has been said, it must be understood, applies fully only to agriculture followed on or near the professional level. That is to say, it presupposes a natural aptitude for the work, adequate capital to carry it on, and sufficient training. Precisely this, the oldest of settled vocations tends more and more to become.

And yet, when all is said, one cannot help feeling that in the development of agriculture on its scientific side we have thus far no more than scratched the surface. To be sure, no other branch of applied science is so richly endowed as is agriculture, as no other vocation except war has had from beginning of our government a cabinet secretary of its own. For no other industry

Courtesy of Georgia Normal and Industrial College

In farming husband and wife work together. While the farmer ploughs the field or sows the grain, the farmer's wife is making butter, raising a brood of hens, or fattening spring chickens for the table or the market

is there anything like the United States Department of Agriculture, with its more than a half century of efficient work, the old land grants which give a school for agricultural training to every state in the Union, or the later legislation which has added an experiment station to each, while virtually every community in the land has

Courtesy of Georgia Normal and Industrial College

Young gardeners. "The family works unitedly toward the common end"

at its service, and that without charge, the best obtainable expert knowledge upon every local problem.

All this bulks large. There is vastly more done for the farmer than for any other worker. But on the other hand, the farmers of the country greatly outnumber any other working group. They comprise a third of all American men. Save only the still more ancient profession of making homes, more persons follow some branch of husbandry than make a living in any other way. The effort, therefore, enormous as it is as a whole, is still far too small in detail.

To this fact the public appears at last to be waking up. Farming is, after all, the most fundamental of all industries. Food is the one thing that mankind cannot go without. If we get too little out of the earth, all our other endeavors are crippled; no efficiency in other lines, no philanthropic zeal, can avoid widespread misery.

On the other hand, there has always been, from time immemorial, a marked tendency for the farmer to become a peasant. The best brains migrate to the city and leave behind a "brother to the ox," hard-labored, uneducated, narrow of outlook.

Here then is the danger: unless the farming districts of the land succeed in retaining their fair share of the native ability, of the training, of the culture, of the opportunity which America offers, then the food supply may fail and our civilization weaken at its foundation.

To this social and economic question private enterprise, state effort, and the policy of the national government are all, at the present time, being directed. The result is such a change in the conditions of rural life as has never occurred before in all the long history of civilization. Motors for pleasure and for work, better roads, consolidated schools, the telephone, convenient mails,

the growing control of science over accidents of the industry, the rising price of foodstuffs—one need not go on with the list. Farming to-day is a very different matter from what it was a generation ago.

It will be still more different in the days to come. Civilization has waked up to the fact that, if it is to maintain itself and continue its advance, agriculture must be made attractive to high-grade men. To such men, therefore, and to such women, it offers year by year a more agreeable prospect. Fortunate it is that for the right sort of man married to the right sort of wife, since farming is always a married man's job, the oldest of the settled vocations offers, even now, one of the brightest prospects for happy and useful days. Ten and twenty years from now, always for the right sort of person, it is doubtful if any human vocation will surpass it.

CHAPTER XVI

LITERATURE AND JOURNALISM

WITH the architect, who is at the same time engineer and artist, we pass to the third of the main types of professional persons. As the first group deals primarily with rational human beings, and the second with irrational things, so the third deals with rational beings on their irrational side. That is to say, it deals with fundamental æsthetic likings of the human soul which lie far below the level of reason. Color and sound, motion and line, the jingle of words give us a quite irrational joy. The persons who have learned to minister to this side of our human nature are the painters and draftsmen, the dancers and actors, the musicians and writers; in other words, the artists.

The artist, in this wide sense, appeals not to the individual man or woman but to "the public." The physician cures a particular patient of a particular disease. The lawyer keeps a particular client out of a particular jail. But the artist deals with that which is common to all mankind, and meets a demand which, if not altogether unconscious, is at least largely inarticulate.

In mental quality, therefore, the artist stands at the opposite pole from, let us say, the lawyer. The one is given a definite problem to solve, and his intellect thinks it through—a logical engine. The other feels in his soul, beyond all reason, that this musical chord or this splash of color or this turn of words is right. The one succeeds by thinking more clearly than other men; the other, by feeling more truly.

The Halliday Historic Photograph Co.

SAMUEL LANGHORNE CLEMENS — "Mark Twain"

Mark Twain was a most forceful and efficient personality quite aside from his literary gifts. As a Mississippi pilot and a California miner, he proved more than able to hold his own in any kind of rough work. He was essentially a man of affairs with the turn for words added on.

The artist, in other words, has "genius." He may have it in ultra-microscopic amount; but there nevertheless it is, "that combination of imagination, insight, originality, power of expression, combativeness, vanity, and thin skin which is commonly miscalled 'the artistic temperament.'"

Once given this artistic temperament, it seems to be rather a secondary matter in which direction it shall turn. One has only to look about him to see to how great an extent, at all levels of artistic gifts, skill at one form is accompanied by some proficiency at several others. Musicians, as a whole, have a better eye for color than non-musicians. The man who can draw can usually paint. Morris, Rossetti, Du Maurier, Thompson-Seton, are obvious instances of men who have gone about equally far in two or more unrelated arts. Most schools can furnish others on a smaller scale. Most families which contain an amateur of one art have members devoted to other arts as well.

This general impulse toward artistic expression runs out by way of four main channels. Ear-minded persons, who naturally think in sounds, go into music. Eye-minded people are attracted by all that has to do with line and color. The muscle-minded find their vocation as actors and dancers, or in some form of art that involves handicraft. Besides, there is what is almost a word-sense, which may accompany any one of the three recognized mental types. Certain persons, apparently by nature, tend to do their thinking in words.

To those who have this word-sense, three vocations are open: They may become literary workers; or they may become writers; or finally, they may become journalists.

Much of journalism is hardly a profession. The ordinary reporter is literally a "journalist," that is, a

"day laborer." He is hired for wages, ordered about by his employer, turned off when his youth is past, in all respects like any hired hand. His work is impersonal; nobody cares whether he or another does it. With the lapse of years he builds up no clientele and accumulates no body of expert judgments. Still less professional is the "space writer," who grinds out the sorry stuff that fills the Sunday edition and encroaches on the weekday columns. These kinds of work may pay up to two or three thousand dollars a year; but they are hardly professional and they certainly are not art.

About the only professional "journalists" are the editors, the "special writers" for the magazines, and the publishers' hacks who write the "timely" books. Wages for this group are, in general, about on the clerical level, with no considerable prizes and few satisfactions of any

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Newspaper reporters at work. One of the chief requisites of the reporter's work is that it shall be impersonal, and that condition places it on a non-professional level

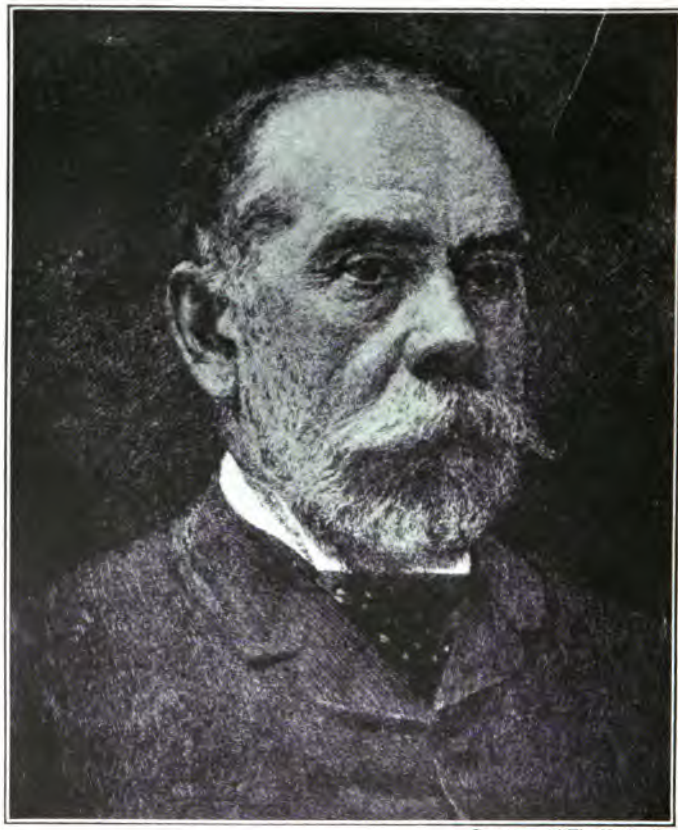
sort that outlast the zest of youth. Nevertheless, in the smaller cities and in towns, newspaper men are among the first citizens; while perhaps a half dozen times in a generation a metropolitan editor like Dana or Greeley or Godkin emerges from anonymity and becomes a power in the land.

For most of us, however, "writing" means writing fiction. Now the rewards of fiction writing may be very high. In the first place there is fame, fame in larger measure than comes to any other worker with the same equipment. As for cold cash, a "best seller" is good for twenty-thousand-dollar serial rights in a magazine, followed by one or two hundred thousand copies at a royalty of thirty cents each, and finished off with a cheap edition of another hundred thousand or so at five cents. A successful play may bring its author a thousand dollars a week during its run. The best short stories bring five and even ten cents a word, though the actual writing may take no more than a single day.

Meantime, there are no overhead charges, and no office staff to eat up half, two thirds, three quarters of the profits. All that comes in is gain.

Unfortunately, however, it takes the same year or two to write the best novel of the season, and the worst; and they both alike sell for the same dollar thirty-five net. The result is that the public never buys what it does not want because it is cheap. What it likes, it runs up to the half million; what it does not care for, it dismisses from its mind at two thousand.

Most of each year's new novels, therefore, sell two and three thousand copies, or less. The author, not being a celebrity, gets ten cents on each. If, therefore, the author is a wise child of this world, he works daytimes at reporting or editing, writing book reviews, or anything else that anybody will pay him for doing, and writes his



Courtesy of "The Nation"

EDWIN LAWRENCE GODKIN — Founder of *The Nation* and Editor of the *New York Evening Post*

Mr. Godkin emerged from anonymity as a newspaper correspondent to a position of power as editor of a metropolitan journal of national and international scope and influence.

books in his free time. As a matter of fact, more than half of even the eminent authors in our language have had some other vocation and have done at least their earlier writing by the way. The great majority of persons who write uncommonly well cannot make a living out of it.

On the other hand, this very limitation makes writing an especially attractive by-employment, and most of all for women. A daughter at home, a housekeeper who can command an hour or two a day, the teacher with a long vacation, anybody, in short, who has the knack of writing at all and is not absolutely worked to death, can try authorship. Again, as a matter of fact, no one who has not seen the writing profession from the inside has any idea how large a part of the text of current books and magazines is written by women with husbands and children. If any one is skeptical, let him run over the names in any literary list.

One writes on his own time, sets his own task, selects his own employer, lives where he likes, is paid strictly on his performance. A quarter's worth of paper is sufficient capital; the upturned bottom of a bureau drawer is sufficient business plant. Nobody cares whether the author is old or young, man or woman, has taken a year over a job or turned it off in a week. All that one has to do is to make out "good stuff," and the rest takes care of itself.

Writing, moreover, is the only trade that exacts neither training nor apprenticeship. Stevenson began in boyhood and laboriously taught himself to write. De Morgan manufactured tiles through youth and middle life, and then in his old age, by way of amusement, turned off a succession of notable works of fiction. One of the earliest of the "best sellers" was written by a man who all his life had been drawing for *Punch*. Miss Alcott, as a mere

The Halliday Historic Photograph Co.

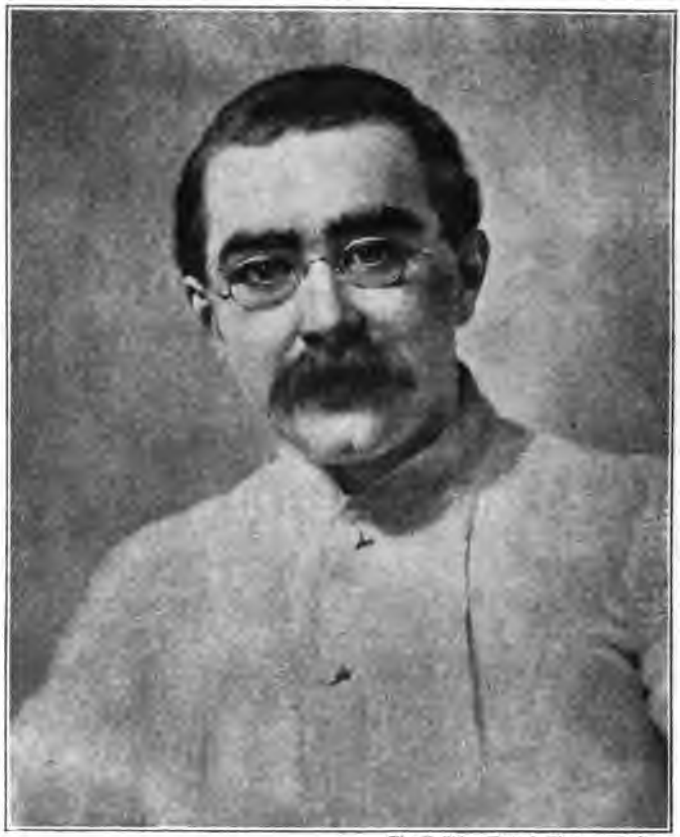
LOUISA M. ALCOTT

Though Miss Alcott had neither training nor experience in writing, her stories placed her among the most successful writers of the day.

girl, needed the money and simply went ahead and wrote with neither training nor practice nor experience; and various other young women have made fame and the first-grade magazines at virtually the first try. Of all professional talents that may bring high prizes, the word-sense is the cheapest to cultivate and the easiest to test.

Why then does not every girl who is tired of washing dishes, emulate Louisa Alcott, make stories out of the dish-washing, sell them in advance at fifty dollars each, and when bills fall thick, do two of them in a day? Why does not some other undergraduate, to whom term bills loom large, write another *End of the Bridge*, and watch five hundred dollars a week flow through the box office into her bank account? There are plenty of sailors besides Bullen and Conrad; plenty of young ne'er-do-wells besides Jack London; plenty of hard-worked cub reporters besides Rudyard Kipling. I suppose that everywhere, in every large city in the land, there are from one thousand to thirty thousand persons out of work, each of whom has had some experience out of which O. Henry would have made a story that would sell out a whole edition of a popular magazine. The demand for good stories is insatiate; the supply is not a drop in the bucket. Yet not one of us goes out and buys a pad of paper to live happily forever after.

The reason why we do not, illustrates with peculiar force the essential situation with regard to all professional work. Professional men and women of medium and high grade enjoy a virtual monopoly of certain kinds and levels of ability. They can do something that the world will pay for having done, and that few persons can do or by any possibility learn. And the moral is, of course, to discover and cultivate the peculiar talent which does



The Halliday Historic Photograph Co.

RUDYARD KIPLING

Mr. Kipling is an example of that most uncommon creature, a newspaper man who "arrives." He is also an especially good instance of a man of genius who works steadily and hard along the line of his peculiar gift, without touching any other field. Clemens and Kipling, therefore, represent two different types of persons who follow the "gifted" professions. Present-day tendencies are strongly in the direction of the Kipling type.

give one some sort of exclusive command of a particular field.

There remains the third group of word-minded persons, those who make a living neither by journalism nor by creative literary work; who love books, but do not make them.

Most important of these are the librarians. As the

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In the children's room in a modern library. Children's reading rooms are rapidly increasing in number, and librarians of special aptitude and training for such work are needed to guide the young in the selection of their reading

wilder parts of the continent become cultivated, and as the older institutions extend their sphere of influence, there is a constantly growing demand for trained library workers. Some of these specialize in cataloguing for large libraries; some take charge of children's reading rooms. Many more, especially women, are the heads of small local libraries, either public collections of a general sort

CHARLES KNOWLES BOLTON

Mr. Bolton, head of the Library of the Boston Athenaeum, one of the largest institutional libraries in the country, is an eminent example of the word-minded person who does not belong strictly in any one of the three groups. He has written many books and has achieved success also as an editor.

or private and institutional libraries owned by historical and scientific societies, and the like. Besides these there are attendants of various sorts who are not professional.

The field is an attractive one. The cataloguers have to be college graduates, with a working knowledge of half a dozen languages. The heads of small libraries, or of local branches of larger ones, need have only a brief

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A Young Men's Christian Association library. The librarian in such an institution is a social worker of much influence for good in the community

course in library theory, but must have unlimited tact and gumption. Much of this work is of the nature of social service, with the very great advantage over most other sorts that the librarian tends to deal with the more ambitious and capable part of the community, and to see some reward for her labors. One thing with another, the range of qualities is pretty wide.

There is, moreover, a very considerable amount of library work done of which the public knows nothing. Many women in the larger cities make a fair living by looking up materials for authors and scholars in other places. They become specialists in the resources of a particular collection. They make lists of books on particular topics. They read and summarize, translate, or quote books in languages which their employers cannot handle, verify quotations, copy original documents, and in various ways act as temporary assistants to all sorts of users of books.

This work pays only moderately well, about like teaching. But on the other hand, it gives the worker command of her time, and it can be readily combined with almost any sort of employment from housekeeping to authorship. Besides this, it brings a rewarding contact with interesting books and with important and especially interesting people.

One thing with another, this whole field of non-creative literary work gives a most attractive outlook to all quiet and scholarly persons; and most especially to women, who here outnumber the men three to one.

CHAPTER XVII

The Fine Arts

BUT after all, writing, even the highest creative writing, is only half an art. The thoroughgoing arts, like painting and music and acting, and the thoroughgoing artists that practice them, are something quite different.

Other young persons who flatter themselves that they possess genius are by no means in so fortunate a situation as is the would-be author. Singer, dancer, actor, and painter have to face a long, an arduous, and a very expensive training, which will demand their full effort and all the money their families can spare. Yet much of this long preparation will neither try them out in advance, as a nurse's does, nor fit them for some other sort of work, as a lawyer's education helps him in business, or that of a man of science makes him into a teacher. One may spend years on voice or violin, only to discover, when it is too late to learn anything else, that the elaborate technique has nothing behind it, or the real talent is just short of the level which brings success. The fine arts are too often a great lottery, with few prizes and many blanks, a cky road with nothing at its end.

The prizes, to be sure, are among the largest that here are. The great names of the past which everybody emembers are either those of kings and generals, or else of artists. Artists as a whole are more in the public eye, see more of the world, are known to more different and to more important people than any other group. Of all work, moreover, theirs is the most like play, about the

The Halliday Historic Photograph Co.

WILLIAM WARREN

A versatile comedian of a time when the standard of acting was much higher than now. The portrait shows well the "orator's mouth" which actors share with other public speakers

only sort of labor, except farming, that has its amateurs who paint or act or sing or dance for the fun of it.

As for money prizes, no royalties on invention or printed page or acted play equal those of a song that catches the public ear, while the vogue lasts. No professional fees of any sort so much as approach the five thousand dollars a night of Madame Patti. Incidentally, one may well note by way of commentary on various things that are said of men's and women's wages, that not only are the singers the highest priced of all servants of the public, but women singers at the top of their profession are commonly paid two and three times the rewards of men on the same level.

But, as always, with the great rewards go many disappointments. While the prima donna is taking her thousands a night, the chorus girl is passing rich on fifteen dollars a week. Actors have sometimes done nearly as well as singers, during a brief run of luck. But the ordinary everyday actor whose name is on the program could well afford to exchange salaries with the average clergyman, while even the glorious matinée idol often earns less in a year than the humble grocer who supports him. The fact is, the great majority of actors and actresses could not make a living at all if they did not marry one another and keep at work.

As for the graphic arts, about the only road to wealth is to abandon art entirely, and take to making pretty pictures like the Gibson and Fisher girls or the mural decorations in the — the reader may supply the location for himself.

Yet for all this, the outlook for the art-minded young person is by no means altogether dark. Although the American public as a whole does not care the snap of its fingers for any form of beauty, the small group which does

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DANIEL C. FRENCH — An American sculptor, in his studio

The prizes to be won in the fine arts are among the largest there are, but the blanks are many, and appreciation for the artist's work in the United States, though steadily increasing, is still slow.

care is steadily growing. Bad as our domestic architecture and our household furnishings still are, they are not nearly so bad as most of us can remember. Once in a while, even a public building is well designed. The "arts and crafts," the revival of pageantry, the various drama leagues and little theaters, the current interest in dancing, a dozen other movements of the day, are all signs of the times. The prospects of moderate success and a reasonable livelihood in most fields of art are growing better rather than worse.

Young persons with the artistic gift, however, commonly make two mistakes. In the first place, they forget that special talent alone does not carry its possessor far enough to make it pay to start. The mere architecture of the skull does not, for example, make a singer. One sings with the brain. To be sure, one cannot sing without a voice; but unless one has mind and character to back it up, to stand the long training, to criticize one's own performance, to have something to express, the singing voice will count for little. The fine arts are professions, and they demand general ability on the professional level.

One may in any large city, during any winter, if he cares to waste the money, attend a dozen "recitals" by as many young women who have spent their own time and their parents' money cultivating a *vox, et praeterea nihil*. They have learned the language of music, but have nothing to express in it.

One may, also luckily without having to pay for it, attend unlimited "exhibitions" by other delightful young men and women who have had a year or two in Paris. They give charming bohemian suppers in their pretty studios, and they paint very pleasing little pictures, which nobody looks at twice. Again the speech of art, with nothing to say.

In other words, the fine arts are exactly like the other professions. They presuppose some sort of special call. But they also presuppose the same scholarship, character, and personal quality that make success in other high vocations.

For the second error, young persons who really do have the artistic temperament combined with respectable general ability are too much inclined to give heed to the traditional advice to "aim high," to "hitch your wagon to a star." The rewards of the "star," both material and immaterial, are very great. But most of the hundred thousand musicians of this country are not prima donnas. Most of them are not even in the back row of the chorus.

Metropolitan Park Commission, Boston

A university boat house, which once would have been planned by the builder, now demands the services of an architect

Metropolitan Park Commission, Boston

A decorative pier on the Anderson bridge, near the Harvard Stadium in Boston. The current art revival in the United States is opening new fields to artists and designers, and prospects of recognition for their efforts are steadily growing

They are teaching children, in school and out; they are playing in orchestras; they are leading church choirs or presiding over church organs. Some of them are tuning pianos or helping to sell the same.

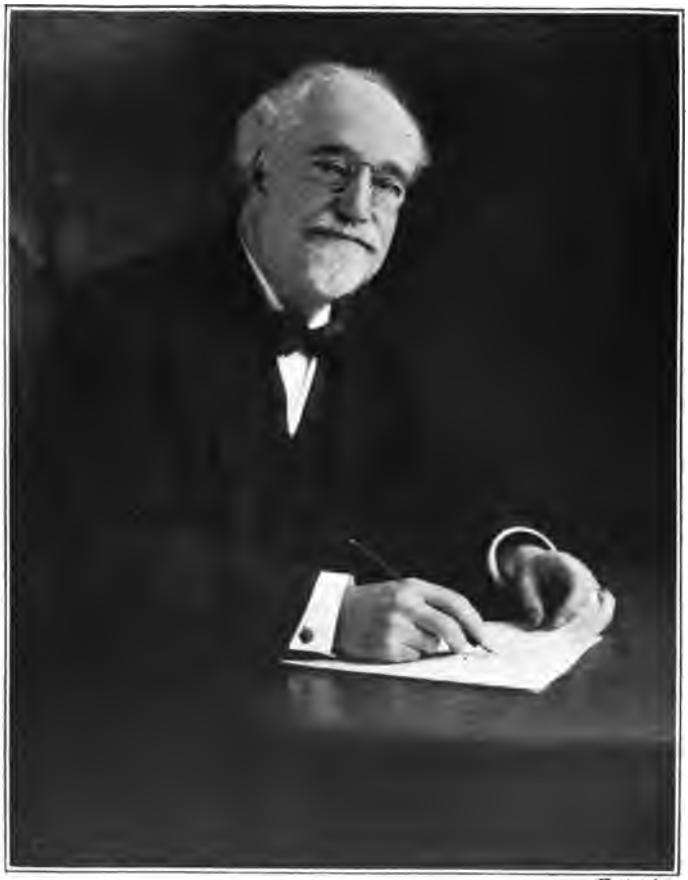
So with the draftsmen and the colorists. Most of them actually get a living by illustrating books and

designing covers, making patterns for calico and wall paper, engraving bank bills for other persons to spend. All the fine arts have their everyday side; and it is on this everyday side that they are most profitably entered.

And yet few young people who are considering an artistic career seem to realize at all how much interesting and worthy and well-rewarded work there is to be done which is not concerned primarily with any conspicuous public performance or success. How many sound musicians, for example, are on the faculties of colleges or the teaching staffs of the secondary schools! Some of them write oratorios. Some are students of musical history or musical theory, and rank with expert scholars in other fields. A great many combine some playing of instruments, most especially of course the organ, with the training of choirs or of other musical organizations.

In fact, there is a well-marked and growing field for musicians, especially men, to take charge of the entire musical programs of the better schools. They are essentially school officers, members of the teaching force, who organize and administer their departments as do other instructors. They have to look out for chapel services and public concerts, to do missionary work in educating the public taste in music, to train the school choir, the school glee club, and the school orchestra, or at least to be responsible for it all. In addition, they commonly teach one or two instruments, or see that some one else does it competently, and they often give class instruction in musical subjects. Often times, naturally, they "double," and teach other subjects also, commonly a language

Closely related to this field is the work of the choirmasters of the larger city churches. These men, in



Hartsook

CLARENCE EDDY — Organist

Though Mr. Eddy has been a most conspicuous public performer, his chief life work has been that of choirmaster, church organist, director of musical organizations, musical instructor, school administrator, and author.

addition, sometimes take on more or less ill-defined duties in connection with various sorts of church work with boys, church brigades, boy scouts, and the like. Then, of course, there are the special teachers of singing in the public schools.

Here, then, is an important field lying midway between music and teaching, and demanding the qualities of success in both. In general, the demands on the teaching side are perhaps a little less severe than for the regular class teacher; while as a musician, sound training is more in evidence than much real genius. But the training should be broader than for either alone, while the combination is uncommon enough to be worth watching for.

In the same way, between teaching and the graphic arts, lies another large field that is well worth cultivating. Schools nowadays, schools of many different types, are giving an increasing attention to all forms of drafting and color. The range, too, is wide, from the real artist who can educate the soul as well as train the hand, to the manipulator of T-square and drawing-board who may be fundamentally a mathematician or a machinist. The last of these, especially, may be primarily teachers of other subjects and take their work with brush or ruling pen as a side issue. As the market is now, every prospective teacher will do well to cultivate any talent, however small, in the direction of color and line.

To sum up, then: Every young genius, whether writer, dancer, player, painter, or musician, does well to hitch his wagon both to a star and to the earth. Whatever he may hope for in the way of fame and money, if he succeeds highly, he owes it to himself to have some definite, commonplace, commercial, routine, "useful" side

of his art out of which he has been trained to make a living. No matter how hot the divine fire may burn, each hopeful genius wants something to fall back on if it goes out. Let him, then, make himself able to teach school, or to draw posters, or to catalogue books. A little more work while he is about it, a little keeping his eyes open to common opportunities, a little wider training to connect with some related fields, and the youth has two strings to his bow in place of one.

All of which advice is so very common-sense and wholesome that there is not the slightest hope that anybody will pay the least attention to it. Besides, there is always the hundredth man who is beyond all rules. And even if the born artist does not make a living, he has always with him "the inward and incommunicable joys" which are the real reward of his art.

CHAPTER XVIII

Professional Fitness and the "Unit Character"

THUS far we have been considering the professions, for the most part, in their relation to one another. We have seen how they naturally group themselves into (1) the old "learned" set which has come down from the immemorial past, differentiated from the primitive sorcerer, astrologer, witch doctor, and medicine man, who is the first professional person to appear in early society; (2) the very modern and also learned set which has been professionalized out of the medieval handicrafts; and (3) finally the ornamental "gifted" set that has descended from the story-tellers and dancers of the *Arabian Nights* and the harpers and ballad-mongers of the Middle Ages. We have noted how largely, in spite of obvious overlappings, each of these three groups sends out its call to a somewhat different kind of man or woman.

We have also seen how, starting with the law, which demands high general ability but no particular gift, we may pass by small gradations through the ministry, teaching, medicine, and the rest, and by the addition of one special talent after another finally reach, at the end of the line, vocal music, which demands very special gifts indeed, even to the conformation of the bones. Somewhere in this series any boy or girl who is of professional grade should be able, in a general way, to place himself.

Let us now, however, turn from the professions in general to certain aspects of the detailed qualities which fit for them. After one has seen the work which seems

Story hour in the open. The children's favorite story-teller belongs to the group of "gifted" professionals that have descended from the bards and troubadours of ancient and medieval times

on the whole worth doing, and for which one is on the whole fitted, there still remains the need of taking stock of one's specific talents. Let us, in short, for the moment, look at professional fitness as an accidental combination of quite independent "unit characters."

This new doctrine of the "unit character," one need hardly remind the reader, is proving itself in the biological sciences to be perhaps the most fertile of all recent ideas that touch upon the nature of living things. It has already modified profoundly our whole conception of the evolutionary process in animals and plants. It has given us an insight into the laws of heredity in all living things such as was not so much as dreamed of even as late as the beginning of this present century. Moreover, on the practical side, it is fairly revolutionizing

our methods of breeding both animals and plants; and giving us such a control over the lower creatures as promises, one dare not prophesy how much, for the welfare of mankind. The new doctrine has, moreover, great possibilities in the field of vocational guidance.

In brief, then, as a result of the biological work of the last fifteen years, we have come to look upon any living organism, whether plant, animal, or man, as an assemblage of somewhat independent unit qualities, any one of which may be taken out or put in without much affecting the rest. Burbank, for example, picks out a flower with an agreeable odor, cross breeds it with another which lacks all perfume, and as a result obtains the second blossom, in all respects precisely as it was before, except that it smells. Biffin creates a rust-

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A field of prickly pear or spineless cactus. A food good for both man and beast developed by Mr. Burbank from the original worthless thorny cactus

proof British wheat, by picking out the most desirable American variety and simply adding on to it the desired unit character, ability-to-resist-rust-infection-in-spite-of-a-damp-climate. The United States Department of Agriculture will inform any farmer how to dehorn his cattle permanently so that no calf in his herds shall ever grow horns again. Doubtless, if it were commercially worth while, the Department would print a bulletin telling how to put horns on a horse.

Nor is human nature in the least different from other forms of life. We all know families in which the unit character, ability-to-form-brown-pigment-in-the-hair, sporadically drops out, leaving certain individuals either red-haired or albino according as there is present or absent the ability, also a unit character, to form the other, red-yellow pigment. There are families in which a certain proportion of the children have both thumbs and both great toes doubled, while all the rest of the children and all the rest of the digits are normal. There are strains in which color-blindness jumps from generation to generation, missing all the girls but catching a fixed proportion of the boys. One need not go on; the newer books on this subject teem with illustrations.

The mind is in this precisely like the body. A talent for drawing or for color or for music, a liking for travel or a preference for staying at home, a taste for machinery or a dislike for dirtying one's hands, all seem to be just such unit characters as horns on a cow or rust resistance in a breed of wheat. Any one of these may occur or be wanting without making any difference with anything else.

All this is, I say, highly important from the standpoint of vocational guidance. Each one of us has certain qualities born in him. If they are there, we can

cultivate them in proportion to their amount, our own opportunity, and the other qualities which happen to accompany them. If they are not there by nature, no amount of taking thought will add one cubit unto our stature or make one hair white or black.

But each vocation demands its own collection of native unit characters. If one be lacking, "the chain is no stronger than its weakest link."

But on the other hand, one such unit may serve this, that, or the other end as it chances to be linked up with this, that, or the other combination. One may, for example, have great manual dexterity. He is then, by so much, fitted to become a champion billiard player, or a surgeon, or a draftsman, or a painter, according to the other qualities which chance to accompany the special sleight of hand. But the boy or girl who lacks dexterity is by that lack cut off from any of these vocations. The keen observer may become a great naturalist, or a great diagnostician, or a writer of realistic novels. Who so has eyes and sees not, cannot be any of these. A love for children is about equally rewarded in the primary-school teacher or the nurse in a children's hospital. A pleasing voice is an asset for politician, clergyman, jury lawyer, actor, and singer.

Or take, by way of further illustration, the question of bodily size. There are certain occupations where mere bigness of frame is a distinct advantage, and where on the other hand a little man is decidedly handicapped. The ministry is one such. So too, possibly to a less extent, is teaching. Engineers, as we have seen, are commonly big men. So, in general, are the most effective public speakers. In short, size of body counts in any profession where it is necessary to influence or control or command directly numbers of

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In the work of the kindergarten teacher is found a rich store of satisfaction and reward for those who love children

other men. In fact, it would be difficult to cite more than the merest handful of instances in which a man of less than average stature has become a great preacher, an orator in any field, a great jury lawyer, or even a great politician. Napoleon set mighty men of war to fighting one another. A little solicitor may brief a huge barrister. Several small "bosses" in American politics have pulled very long wires. But the big men make the public appearance. It is the beam rather the mote that gets in the public eye.

Any man, then, under five feet and a half tall may well hesitate before he enters the ministry, fits himself to plead at the bar, attempts to teach outside the graduate school of a university, or acts on the stage. For a physician on the other hand, for an office lawyer, for a "researcher" in most branches of science, for a painter, an author, a scholar, stature is of the smallest

moment. Here an ounce more of brains offsets a stone or two of brawn.

Unfortunately, perhaps, this whole question of the unit characters of human nature and their relation to the several occupations of our modern world, has rather a negative than a positive value. A knowledge of unit

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Outdoor ward in a children's hospital. What more persuasive call to a profession than is the children's ward to the lover of children?

characters serves less to show to youth the field which it should enter than to warn it of the places where it has no business to go. One's general quality, one's main interests, indicate what he probably will be able to do. Then come in one's specific attributes to show from what particular work he is cut off. Who does not know persons admirably fitted for the work of teaching, save only that they are nervous and shy? Who does not know clergymen with all the learning and the zeal and the preaching gift that should carry them far, yet who have no social tact and are always in trouble? There are skillful physicians who cannot keep secrets. There are gifted engineers who have no business sense. There are would-be journalists who lack the "nose for news." All such persons fail to respect their limitations. The matter is worth dwelling on, because it has been thus far largely ignored by persons who have had to do with most forms of vocational guidance. By way of still further illustration, take the two contrasting types of character which the late Professor Münsterberg has analyzed with peculiar insight.

There are, on the one hand, certain persons who love uniformity. They want to catch the same car every morning; to eat at the same restaurant, if possible at the same table, with the same waiter; they rest their minds by playing the same number of holes of golf every afternoon or the same number of hands at whist every evening. They even go so far as to acquire a house of their own at seaside or mountain resort in order that even their vacations from home may be all exactly alike. The fact that such persons have done a thing once gives them sufficient reason for continuing it forever afterwards.

On the other hand, there is another type of human being to whom once doing anything is the all-sufficient reason for never doing it again. Not routine but variety is their passion. Even an unpleasant experience is welcome if only it be new. Their interest is in new places to dine, new places to visit, new people, the latest fashion in opinions no matter how absurd.

Obviously, these two sorts of person cannot both be happy in the same sorts of work. The one as, let us say, a nurse, will prefer an office or a hospital. The other will choose private nursing or "the district." The second sort, with the teacher's bias, will be driven wild with the monotony of class work, year after year, but will revel in a lecture tour. But the first sort of person will grow into his schoolroom till every fiber of his being clings to each desk and chair.

On the intellectual side, this difference in temperament leads the man of science to keep altering his opinions with each new discovery up to the end of his days. For him, every belief is but a stepping-stone to another. Nothing is ever finally settled. But to be happy in the ministry, one must be of the type which, in callow youth, commits itself finally to some one set of doctrines which, in theory at least, it were sin ever to question. Two men might, the one preach the gospel and the other lecture on electrical theory. They might be very much alike in ability, in personality, in learning. But they would, if they fitted their tasks, be so unlike in this single quality of temperament that each would be miserable in the other's place.

One could go on at very great length and point out all sorts of peculiar unit characters of intellect, of body, and of temperament which would more or less interfere with this, that, or the other vocation; or in other cases

would not probably make the least difference. Any one can see for himself how certain characteristics do not go with certain occupations, so that no amount of excellence in other ways will offset their handicap. Any student of human nature can develop the point at any length.

In fine, then, we shall probably get the surest insight into problems of vocational guidance if we adopt the point of view of the modern student of biology and look upon human nature as a mosaic of somewhat independent qualities, qualities which do not in general hang together, and which may occur in almost any combination.

Then we have to consider just what combination of these independent qualities is essential to success in each field of labor, how far these qualities where they seem naturally lacking can be developed by education; and how far, on the other hand, they are inborn and beyond our power to control. In general, be it added, precise studies of most of these unit characters prove that our control over them is very much less than we used to think up to the end of the nineteenth century.

After this comes the analysis of the individual boy or girl to determine just what his unit characters are. Always, among all these, general ability, native brain power that is to say, is by far the most important. Next come the special aptitudes for the particular vocation, with special attention to the failures and absences which will be handicaps in the proposed work. The study of why other men have failed is no less important than a knowledge of why they have succeeded.

One must, therefore, if he would do well in his life work, go over his proposed occupation and himself, quality by quality. It is not enough that he should

be, in general, of the legal type or the engineering type or the artistic type, with a liking for this, that, or the other sort of work. He must be sure, in addition, that there is some particular subdivision of his general professional field which will not demand any single unit character which he does not possess and cannot somehow cultivate. Vocational success is like house-building. It is not enough to provide bricks for a brick house, wood for a wooden house, or stones for a stone house. There must be also each separate size of nail and screw and window pane, even to the hasp that closes the woodshed door, else the dwelling is not complete. In all the reams that are being written on vocational guidance there is no truer saying than this: "If any man keep the whole law and yet offend in one point, he is guilty of all."

The doctrine of unit characters, moreover, should put us on our guard against trusting too implicitly to the forces of heredity. It is indeed true, as we have already seen at length in earlier portions of this work, that an established family tends to hold steadily its level of general ability. This is because, as Pierson and others have abundantly shown, men and women alike tend to marry about on their own mental grade, so that each child tends always to get an equal inheritance from both sides of the house. There is, furthermore, as also we have seen, a marked tendency for certain specific abilities, qualifications for particular professions, to pass along from generation to generation undiminished. This is partly because men are likely to marry the sisters of their associates and thus provide their sons with an inheritance from another family like their own, and partly because general ability, which does run in families, is after all the most important single element in professional success.

Nevertheless, the fact remains that husbands and wives, however much alike they may be in general quality, do nearly always differ strikingly in single unit characters of mind and temperament. Thus, to cite another actual case from the profession that is most familiar to most readers of this text, an uncommonly successful teacher, especially strong in discipline, married a wife who had failed as a teacher for lack of just that power of leadership which is the basis of good discipline. Their son had apparently all the qualities of his father. He enjoyed teaching. He loved books. In all respects but one he seemed better equipped than his father for the father's profession. But he favored his mother in one point—he could not inspire a following. Therefore he did not make a teacher, and after trying for half a dozen years turned to another occupation. He had all the teaching virtues except one. For lack of that he missed.

Yet we must not forget that there is also the converse case, where the father disappoints expectation for lack of some single quality that would make his equipment complete; and where the son takes that lacking unit from his mother, in whom it appears in quite different combination. The principle, fortunately, works both ways.

One must, then, in dealing with a youth who seems fitted for some vocation which runs strongly in his family, always be on one's guard against mistaking a nearly complete equipment of the ancestral qualities for one absolutely complete. No two persons are alike, and no person is ever precisely fitted for any special task. We must make sure that the little differences among the greater likenesses are not of an essential sort. This is equally the case whether we are dealing with a resemblance to a successful relative in the profession or to our ideal of a type that should succeed.

CHAPTER XIX

Professional Quality and Its Amount

IT IS not, however, enough to know that one has or has not any gift. One must, in addition, know whether he has enough of it to have any market value.

It has long been the practice among statisticians to rate any sort of measurable quality by the percentage of individuals who have the particular property in less measure than the individual under consideration. Thus, for example, the American adult man who stands five feet and eight inches in height, weighs one hundred and fifty pounds, and can lift about one sixth of a ton, is just about mediocre, and is said to be in each of these respects in the fifty per cent class. That is to say, about an equal number of his fellows surpass him and fall short. But the six-footer who weighs two hundred, and can lift a fourth of a ton, will be well up in the first quarter of his group. He will therefore be along in the eighty and ninety per cent classes. Whoso can outdo only one in each ten of his mates is in the ten per cent class.

Manual skill, for example, has its reward even in amounts below mediocrity. The girl who puts breakfast foods into paper boxes is a low-skilled laborer. Yet there are levels below her—persons who cannot do even this simple work for lack of human hands, and so drop to a still lower industrial level. Rated statistically, therefore, skill of hand begins to show in money returns even as low as the twenty-five per cent class. On the other hand, a singing voice has to reach the ninety per cent class before it becomes acceptable in an amateur, and to

While no higher manual skill than is required in packing food into paper boxes is sure of a money return, professional capacity must rank toward the hundred per cent efficiency before it can count on a market

go beyond ninety-nine per cent of excellence before it yields a living. The successful grand-opera star is picked from ten thousand or ten million.

Apply, then, this principle to any of the elements of professional success. Administrative capacity has a market value almost everywhere. Anything above the seventy-five per cent class lifts its possessor out of the mass of workers, while the higher grades bring the great prizes of the commercial world. But for a clergyman, high endowment is hardly better than moderate ability, unless he have with it enough of tact, scholarship, or eloquence to put him into a church large enough to need high executive gifts. A physician may have ample patience and tact for ordinary office practice, and yet not enough of either for him to specialize in nervous and mental diseases. A nurse "on the district" needs uncommon stamina and hardihood to handle all sorts of emergencies

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In the manual-training department of a public school. Manual skill, however crude, will always bring some money return. Professional quality, on the other hand, must reach a high standard before it can secure any consideration or any acceptable reward

and be out in all sorts of weather; but the necessary amount of these will depend on many different circumstances, while unless both reach a certain level they might as well not be at all. A voice below fifty per cent quality will be no special handicap to a lawyer, because he can stick to office practice; but it would be a sad handicap to a clergyman, because virtually all clergymen have to preach. The temper which is quite adequate for the solitary scientific worker might frazzle out forthwith in a public school.

One must, then, if he is to carry his vocational analysis far enough to be of much use either to himself or to anybody else, learn to think of human nature quantitatively. After all, it is just this quantitative point of view, this perpetual demand for "just how much," that has made modern science and that separates sound thinking from haziness and quackery. We must,

in short, think of human qualities, not merely as being present or wanting, but also as in some degree measurable.

One cannot emphasize this point too heavily. It is said to require a more accurate muscular sense to work in metal than to work in wood, but more general "brains" to make a carpenter than to make a mechanic. In like manner, for a boy who looks forward to medicine it is vastly more important to be the first scholar in his class than to be captain of the baseball team. The public demands of the physician grade "A" in scholarship. It lets him off with an "E" in the social and temperamental gifts that make the athletic leader. But for a prospective clergyman the reverse is the case. A "C" in scholarship, a rating among his mates along in the fifty per cent class, will do. But in manliness and leadership, in social and moral qualities, he ought to grade above nineteen in twenty of his companions. For after all is said, no normal man ever utterly lacks any human quality, and no man ever possesses any quite to perfection. The best memory in the world lets go more than it holds. The ear that confuses "Old Hundred" with "Yankee Doodle" still does not mistake a piccolo for a base drum. Barring a few special gifts, we all of us have, in very fair measure, every quality that equips the leader of every separate vocation. We differ from one another in degree, not in kind.

Each of us, then, whether we are considering our own vocational future or that of another, needs to make clear to himself the answers to these three questions:

How much of the several qualities that go to make up human nature does this particular vocation demand?

How much of each of these several qualities does this particular individual possess?

Supposing that after years of training and trying out, some essential element fails to reach its proper level, what useful work is there to be done for which the equipment will be adequate?

Does it seem too great a demand on boys and girls that they should thus analyze themselves and their labors? This also is a test of vocational fitness. People who cannot do this sort of thing are not fitted for the professions.

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